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THE
Gardeners *and* Floriſts DICTIONARY:
OR A
Complete Syſtem
OF
HORTICULTURE, &c.

We, whoſe Names are under-written, do approve and recommend this Book, intitled, The Gardeners and Floriſts DICTIONARY, *&c. as highly Uſeful and Neceſſary for all lovers of* Gardening.

THO. FAIRCHILD at *Hoxton.*
ROB. FURBER at *Kenſington.*
ROB. SMITH at *Vauxhall.*
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GARDENERS,
AND
NURSSERY-MEN.

THE

Gardeners *and* Floriſts DICTIONARY:

OR A

Complete Syſtem OF HORTICULTURE:

CONTAINING,

I. The Culture of a KITCHEN GARDEN, giving Directions for the Choice of Seeds, Sowing, Planting, and Ordering all Sorts of Eſculent Herbs, Plants, Roots, *&c.*

II. Of a FRUIT GARDEN, or ORCHARD, as to Planting, Grafting, Inoculating, Pruning, *&c.* all Sorts of Fruit-Trees.

III. Of a FLOWER GARDEN, as to the Raiſing and Nurture of all Kinds of Flowers, either Natives, or naturaliz'd in *England.*

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IX. The origin, Cauſes and Nature of METEORS, as Rain, Hail, Froſt, Snow, Winds, *&c.* of the Elements, as Water, Earth, Air, Fire; their particular Uſes in the Buſineſs of Vegetation.

X. An Explanation of the Terms of Art uſed in Gardening and Botany.

To which is added, A Catalogue of curious TREES, PLANTS and FRUITS, from which any Gentleman may collect at pleaſure, what may be uſeful or ornamental to his Gardens.

VOL. II.

By *PHILIP MILLER,* Gardener of the Botanick Garden at *Chelſea.*

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THE

Gardener's and *Floriſt's* DICTIONARY.

1. MACHES; *ſee* MASKETS.

2. MADDER.

MR. *Mortimer* ſays, there is but one Sort of *Madder* that is manured and fit for Uſe, although there are ſeveral Things like it, which are accounted a wild Sort of it, as; *Ladies-Bed-Straw*, *Croſs-wort*, *Gooſe-graſs* and *Wood-roof.*

Deſcription]. The right Sort hath long Stalks and trailing Branches, being rough and full of Joints, *each Joint being ſet with rough* green Leaves in the Form of a Star. At the Top of the Branches grow Flowers of a faint *yellow* Colour, which are ſucceeded by a round *green* Seed. The Roots creep on the Ground entangling themſelves one with another, being of a reddiſh Colour, while the Plant is green and freſh: They are ſmall and tender, and run on the Earth like Ivy along a Houſe or Tree.

The Way of Propagation]. Although this Plant bears *Seed*, yet it comes to no Perfection; and the way of propagating it is by *Sets*, which may be had of the Gardeners about *London*. Theſe are to be procur'd in *March* and *April*, as ſoon as they ar grown two or three Inches hi they muſt be well rooted, and every *Set* ought to have ſome *Suckers* or Spines of Roots growing out of them. They are to be ſlipp'd off from the main Root, and put into a Basket with a little Mould aſſoon as they are taken up, and be ſet again aſſoon as poſſible.

Soil]. They muſt be planted in a very rich, deep, warm Mould, that has been digged at leaſt two Spits deep; and after it has been raked very fine, the *Sets* are to be planted about a Foot aſunder every way.

Culture]. If the Spring proves dry, they ſhould be kept conſtantly watered till they begin to ſprout, and alſo weeded and houghed, till they have attained Strengh enough to get the Maſtery over the Weeds. That the Ground in the Vacancies may not be unemploy'd, early ſallad Herbs, as Onions, Radiſhes, or the like, that will ripen betimes, may be ſown between. If any of the *Sets* happen to die, you muſt plant others in their Places.

Madder does not come to Perfection uſually under three Years Time. But the firſt Year ſome few *Sets* may poſſibly be taken off here and there, but that will endanger the Plants; but the ſecond Year you may take off as many as you pleaſe, ſo you do but leave the main Root.

In the taking up of every Root here will be one Runner, with *mall Buds on it;* theſe may be *ided, and cut into* Finger's *ngths, ſo that every Set* be planted with one Bud out of the Ground; and ſo one Runner will make many *Sets*; but theſe Sets muſt not be taken up, till the Madder be taken away.

Of the Ordering of it]. The Madder being preſerved till it comes to a good Crop; it is to be dry'd, after the manner of Hops, to a juſt Proportion of Dryneſs, and the Husks on the Out-ſide muſt be pared off; (which requires ſome Art in the Performance) this which is pared off is called *Mull-Madder*, and will be worth but about ten Shillings an Hundred; the ſecond Sort, which is the middle Rind, is much better than the firſt, but not ſo good by a ſixth Part as the third Sort, and is call'd Number O, which is ſometimes worth ſix Pounds ten Shillings, inclining to a yellow Colour; the third Sort is the Heart and Pith of it, and is call'd *Crop-Madder*, and is worth ſometimes eight or ten Pounds a Hundred.

Some have affirmed that there have been two or three hundred Pounds made of an Acre of Land planted with Madder in three Years Time. It is uſed by the Dyers for making the moſt ſolid and rich Red.

3. MALABAR-NUT; *ſee* ADHATODA.

4. MALLEOLUS.

M*ALLEOLUS* is a Sprout growing out of a Branch, which grew out it ſelf but the Year before.

5. MALLOWS.

GARDEN Mallows are a very fair Flower, various in Form and Colour; this Plant is for the moſt part rais'd of Seed ſown in the beginning of *April*, but it does not bear Flowers till the ſecond Year, in *Auguſt* and *September*. The Flowers are ſucceeded by a Seed, which is contain'd in round flat Heads; and as they flower late, the Seeds are to be taken from the firſt Flowers.

6. MALT-DUST.

MR. *Mortimer* tells us, that *Malt-Duſt* is an inricher of barren Land.

Mr. *Switzer* ſays, that altho' the Improvement of *Malt-Duſt* has been hitherto known ſo little, yet there is a natural Heat and Sweetneſs in it, that gives the Earth whereon it is laid a proper Fermentation, as is learn'd by Experience in malting Countries; from whence we may ſuppoſe that every thing which gives Life and Vigour to Land, is not of one Kind or one Principle; whether it be of a ſaline Quality as *Salt*, of a ſharp and ſour Taſte as *Vinegar*, of a hot and biting Quality as *Pepper*, or ſweet as *Sugar*. For let them be of any Quality whatſoever, they all help forward in promoting Vegetation, by the ſpirituous Parts ſubtilely inſinuating themſelves into the Surface of the Earth, and then by the Co-operation of Water diſſolving thoſe Clods that contain the Chryſtalline Parts, neceſſary, and often underſtood to reſide there for the Buſineſs of Vegetation.

There is not a greater Sweetener than *Malt-Duſt* is, whether they be natural Clays or Grounds which have contracted a Sourneſs and Auſterity, whether for want of being till'd and expos'd to the Air, or by Water ſtanding long on them.

Mr. *Cook* ſays, *Malt-Duſt* is a moſt excellent Compoſt in a ſmall Quantity for many Sorts of annual Seeds, as he has often try'd with good Succeſs. That this being a ſmall Part of the Roots of the *Barley*, and being very Dry drinks in the Element of Water, which is the principal and firſt Matter of all Things; and from the Fume of an oily Water is the Life of all Plants. The Parts of the *Malt-Duſt* being thus filled upon the Sun's attracting that and the Plant, the Root embraces this Fume. This little Root not having Life to grow turns to Earth; and its Grave is a Room to lead the Root of another Plant in.

7. MAPLE.

The Kinds]. MR. *Mortimer* ſays, tho' Mr. *Evelyn* reckons up ſeveral Sorts of Maple, yet he finds no great Difference in them we have in *England*. Mr *Cook* ſays, tho' Authors tell us of more, yet he knows but one Sort. Thoſe that are kept ſhred up to run to Standards, have a fine clear Grain, and thoſe that are pollarded grow the moſt knotty and full of Burs, it being a Tree that is very apt to put out ſide Branches.

It is a Tree that ought not to grow Tall where there is any Wood or Trees under it, becauſe the Leaves have a clammy Dew ſticking to them; which being waſh'd off by the Rain, glews up the Buds of whatſoever Trees or Buſhes grow under it, and ſo kills them; and for that Reaſon they are not fit to be planted in Hedges or among other Wood.

Way of Propagation]. They are multiplied either by *Seeds* or *Layers*, or from the *Roots* of old Trees like the *Elm*, or by *Suckers* which occaſions their being ſo plentiful. The Seeds like thoſe of the Aſh-Tree will lie till the next Year after they are ſown, before they will come up, and are to be ordered after the ſame Manner.

They do not run down with tap Roots, ſo much as many other Trees do, and therefore may the more eaſily be remov'd, and may be tranſplanted almoſt of any Size: The Time for removing them is in *October* or *February*.

Soil.] They will grow in almoſt any Soil, but like a ſound dry Mould beſt, and rather on Hills than Bottoms.

8. MARACOCK; *ſee* PASSION-FLOWER.

9. MARCH.

Work to be done in the Kitchin-Garden, Orchard, &c.]

THIS Month, ſays Mr. *Bradley*, being generally attended with white Froſts in the Nights, haſty Storms of Hail and Rain, and the Winds from the *Eaſt* and *North-Eaſt*, which are very hurtful to fruitful Trees, then bloſſoming; and the Showers which fall wounding and bruiſing the tender Plants that ſtand abroad, a Gardener ought to be very watchful to ſhelter and defend his Trees and Plants from the Injuries of the Weather.

The Sun alſo having great Power over Plants, and the piercing Winds concurring with the hot Gleams, ſcorch and ſhrivel the tender Shoots of thoſe Plants that are now beginning to ſprout; they ought to be defended from their Violence.

And altho' we have now many briſk Showers, they do not reach very deep in the Ground; and therefore all young planted Herbs or Trees ought to be watered, and that in the Morning, that the Froſts coming upon the Plants too ſoon after watering may not chill the Roots.

If any thing that ought to have been done in the former Months has been neglected till now, it is not to be delay'd any longer.

If this Month prove cold, it will be ſeaſonable to check the pregnant Buds, till a more ſafe Seaſon; and if it prove dry, the Country People account it to preſage a happy born Year.

You may yet prune or plant Trees of all Sorts, except Winter Greens, tho' it is of the lateſt. And Mr. *Laurence* ſays, it is high Time to finiſh the pruning of *Peaches*, *Nectarines* and

Apricocks, that the ſwelling Bloſſoms be not rubb'd off in the Performance, if delay'd longer.

This is the chief Month for grafting, beginning with *Pears*, and ending with *Apples*; only if the Spring proves forward be the earlier. Prune the Graffs of the laſt Year, and cut off the Heads of the budded Stocks. Cover the Roots of all thoſe Trees that you laid bare the preceeding Winter; and remove thoſe young Trees that you omitted before, if the Bud be not too forward.

Plant *Nectarines* and *Peaches*, but do not cut off the tap Root of them, as you do to other Trees, becauſe it will do them Injury.

Sow *Peas* and *Beans*; alſo ſow *Cabbage*, *Imperial* and *Sileſia Lettuce* and *Radiſhes* among your other Crops you put into the Ground, for they will be ripe and gathered before the others want their Place.

Plant out ſome *Colliflower* Plants, to come after thoſe planted in *Autumn*.

Sow *Scorzonera* and *Salſify*; and ſlip *Skirrets* of the preceeding Year, and leave only the tender Fibres, but none of the greater Roots about the Plants.

Plant, *Balm*, *Mint*, *Penny-Royal*, *Rue*, *Sage*, *Savory*, *Thyme*, and moſt Sorts of Garden Herbs, ſweet Herbs and Summer Flowers, and all Garden Herbs and Flowers that have fibrous Roots.

About the middle of this Month dreſs your *Aſparagus* Beds, for the *Buds will begin to appear* above Ground early in *April*; ſo that if this Work be done at the End of *March*, you will break off many of the Buds.

Make new Plantations of *Aſparagus* in the natural Ground.

Sow *Cabbages* and *Savoys* for a Winter Crop, and ſome *Colliflowers* on a declining hot Bed, and alſo *Sellery* for early blanching.

Sow *Sallads* in a warm Place, alſo *Spinach*, *Rape* or *Sorrel*.

Dreſs your *Artichokes*, leaving only three or four Suckers on each ſtrong Root, and ſlip off the reſt for tranſplanting, *&c.*

Make hot Beds for *Cucumbers*, *Melons*, &c. and refreſh your *Cucumber* and *Melon* Beds with hot Dung, and alſo ſow for a full Crop.

About the middle of the Month dreſs and ſtring Strawberries.

Sow *Chardones* to be tranſplanted the next Month. Tranſplant *Lettuce* for Cabbaging, and to ſtand for Seed.

Sow *Aleſanders*, *Baſil*, *Beets*, *Borage*, *Bugloſs*, *Burnet*, *Cabbage*, *Carrots*, *Chervil*, *Creſſes*, *Dill*, *Endive*, *Fennel*, *Garlick*, *Leeks*, *Lettuce*, *Marygolds*, *Marjoram*, *Onions*, *Orach*, *Parſnips*, *Parſley*, *Peaſe*, *Purſlain*, *Radiſh*, *Sellery*, *Sorrel*, *Smallage*, *Spinage*, *Skirrets*, *Succory*, *Turnips* and *Samphire*, which will grow well of *French Seed*, and tranſplant it in *May*.

Plant *Chives*, divide the Roots of *Tarragon*, and tranſplant the Slips about eight Inches diſtant.

Towards the End of this Month ſow French and African

Marygolds, *Naſturtium* and *Purſlain* on hot Beds.

Dung and ſmoak Orchards; plant Hops. Now is a ſeaſonable Time to dreſs them. Now is the Time that the Bees ſit, keep them cloſe Night and Morning; and if the Weather prove ill, you may remove them.

Products of the Kitchin-Garden.

Winter *Spinach*, *Cabbage*, *Sprouts*, *Cabbage-Plants*, *Coleworts.*

Aſparagus upon the hot Beds made in *February*; *Cucumbers* upon the Plants rais'd in *January*; *Kidney-Beans*, and ſome *Peas* on hot Beds.

Roots, *Red-beets*, ſome *Turnips*, *Radiſhes* of *Michaelmas*, and *Carrots* ſown in *July*.

Towards the End of the Month *Radiſhes* ſown on the hot Bed, *Hop Buds* to boil in *February*, ſome *Purſlain*, and Tops of *Tarragon.*

At the End of this Month *ſcarlet Strawberries* upon hot Beds, and ſome *Beans.* Alſo the Stalks and tender Sprouts of *Turnips* are accounted a good boil'd Sallad, and in the Market are call'd *Lupines.*

Fruits in Prime, or yet laſting].

The *Golden Ducket*, (Doucet) *Loves Pearmains*, *Winter Pearmains*, *John Apples*, *Pippins*, *Runnetins*, &c. Later *Bon Chretien* and *double bloſſom Pear.*

Works to be done in the Flower-Garden and Green-Houſe.

Top your Roſe-Trees near a Leaf-Bud, and prune off the dead and withered Branches, keeping them to a ſingle Stem.

Slip and ſet *Box* for Edgings: Part or ſlip all Sorts of fibrous rooted Plants, as *Aſters* of all Sorts, *Cardinal Flower*, *Roſe Campion*, *Holly-hocks*, *Gentianella*, *Monks-hood*, *ſcarlet Lychnis*, *Perennial Sun-Flowers*, *Sea-Pinks*, double *white Rockets*, and *Sweet-Williams.*

Sow *Stock Gilliflowers*, and on hot Beds the leſs tender Exotick Seeds, which are not natural to our Climate, as *Balſamines*, *Convolvulus*, *French* and *African Marygolds*, *Naſturtium Indicum*, eſpecially, the little *blue China* or *Indian Pink.* Theſe ſhould not be ſown before, becauſe they would touch the Glaſſes, before they can have Liberty enough given them, for they muſt not be ventured abroad in the natural Ground, till the middle of *May.*

Sow *Pinks*, *Sweet-Williams*, *Carnations*, *Bayes*, *Alaternus*, *Pine Kernels*, *Phyllirea*, and perennial Greens.

Defend your *Tulips* from Blights; tranſplant your *Carnation* Layers for blowing, if they were not planted out at *Autumn*, which is the beſt Time.

Sow *Auricula* Seeds in Pots or Caſes, in good Earth ſomewhat loamy.

Plant *Anemone* Roots to bear late; and if the Seaſon be dry water them once in two or three Days.

Give freſh Earth to the Pots of *Campanula Pyramidalis*: Alſo ſow their Seeds, and take Slips from their Roots.

Plant *Tuberoſes* in Pots of freſh Earth: Plant and make Layers of the *Paſſion-Tree*, to make it bear Fruit. Tranſplant the *Arbor Judæ*, and ſow its Seeds.

Sow the *wild ſpirting Cucumber* and *Noli me tangere* in natural Ground; ſow the *humble* and *ſenſitive Plants* on the hot Bed. Graft the *Spaniſh white Jeſſamine* on the *common white Engliſh* Sort. If any *Exotick* Plants, have ſuffered in the Conſervatory, put them into the hot Bed, but let the Earth be laid thick upon them to defend them from the Steam of the Dung.

About the End of the Month raiſe Stocks to bud the Orange and Lemons on: Set *Aloes*, *Amomums*, *Dates*, *Lentils*, *Lemons*, *Myrtles*, *Oleanders*, *Oranges*, and other tender Trees and Plants in the Portico, and open the Doors and Windows of the Green-Houſe or Conſervatory to enure them to the Air by degrees; but do not truſt them at Night to the Weather.

Carry thoſe choice *Auricula* Seedlings or Plants, that have been preſerved in Pots, into the Shade.

Tranſplant *Carnation* Seedlings; earth up Layers, and cut off the infected Leaves.

Take Care to cover Seedlings of *Bays*, *Cyprus*, *Firs*, *Phyllireas*, *Pines*, and all other Winter-Greens with Straw or Peas Haulm, till they have paſs'd two or three Years in the Nurſery, and are fit to be tranſplanted. And the ſame ought to be done in all ſevere Weather during the Winter, tho' they may be uncovered in good Weather.

This, Mr. *Laurence* ſays, is a ſeaſonable Time to remove and plant all Winter-Greens, *Hollies*, *Yews*, *Phyllireas*, &c.

Water your *Orange* and *Lemon* Trees frequently, but ſparingly; uſe them to the Air by degrees, and alſo your *Auricula* Seeds; and if the Weather be warm, give a little Water to the *Ficoides* that are moſt ſucculent.

Tranſplant Ever-greens, the *Holly*, *Phyllirea* and *Yew*, and ſow the Seeds of *Ever-green Privet*.

Flowers now blowing.

Almond, *Anemones*, *Winter-Aconite*, *Apricocks*, *Arbor Judæ*, *Auricula*, *Brumal Crocuſſes* of all Colours, *Chelidonium*, *Crown Imperial*, *Spring Cyclamen*, *Daiſies*, *Dens Caninus*, *Ficoides*, *Fritillaria*, *Grape Flower*, *Stock Gilliflowers*, black and white *Hellebore*, *Hepatica*, *Iris's*, *Yellow Jonquils*, *Laurustinus*, *Leucoium*, *Dutch Mezereon*, *Narciſſus*, *Oranges*, *Polyanthos*, *Præcoce Tulips*, *Primroſes*, *Violets*.

10. MARJORAM.

Deſcription.] OF *Marjoram* Monſ. *Liger* reckons two Sorts, which he thus deſcribes; the firſt ſhoots out Stalks about a Foot high, woody, a little hairy and *reddiſh*, dividing themſelves into ſeveral ſmall Branches, along which *ing* their Land ſhallow, becauſe it is apt to work downwards; but others are for laying it in deep at firſt, becauſe the Sun waſtes the Fatneſs of it.

Some ſay *Marles* agree beſt with ſandy, looſe Land; but there is no Rule without an Exception: The beſt way to know what Lands it will beſt agree with, is to try the Experiment with a little of it, on Lands ſuppos'd of a contrary Nature to it.

Marles ought to be us'd in Proportion to the Depth of Earth that they are laid upon; and over-*marling* is oftentimes of worſe Conſequence than under-*marling*.

Marles do not make ſo good an Improvement of Lands the firſt Year as afterwards.

Some propoſe the Burning of the *Marle*, and then laying it on Lands; then One Load will go as far as Five unburnt.

12. MARTAGONS, TURKS TURBANTS, MOUNTAIN, or CURL'D LILIES.

Different Kinds, and Deſcription.] THESE Flowers, ſays Mr. *Bradley*, have their Roots, Flower, Stems and Leaves not unlike thoſe of the Lily, but differ from Lilies in the Frame and Order of their Flowers; for the Bloſſoms of the *Martagons* hang downwards, and have their *Petals* or Flower-Leaves curl'd or turn'd upwards, whereas the *Lilies* have not: They blow generally about Two Foot high; their Flowers are of al Colours, ſome *yellow*, *of a ſcarlet* Colour variouſly ſpotted: But the *Virginian-Martagon* has its Flower-Stem commonly Three Foot high, and commonly exceeds all the reſt for the Beauty of its Flowers, and is very rare. They all of them love a light, ſandy Soil, and are in all Reſpects cultivated like the *Lily*, and are proper Ornaments for Parterres.

Mr. *Fairchild* reckons Five ſorts of them; the *Common*, the *Pompony-Martagon*, the *Imperial-Martagon*, the *White-Martagon*, the *Scarlet-Martagon*.

Monſ. *Liger* reckons Four ſorts of *Martagons*, which he deſcribes as follows,

The *Great-Martagon*, bearing a *red* Flower, crooked and bending down at the End of the Stalk, which keeps it up, has a Stem between Two and Three Foot high, without any Stalk, cloſe to the Stem, ſmooth to the Touch, and of a *deep Green*.

The Second ſort is like the Former, excepting that it bears fewer Flowers, and they not ſo *red*, and alſo upon a leſs Stem.

The Third ſort is like the Former, only it has Bulbs between the Leaf and the Flower.

The Fourth ſort, call'd *Pomponius*'s *Martagon*, differs from the Other, in that it has a large Bulb, wrap'd up in very little, thin Shells, and its Flower is of a *yellow* Colour.

Way of Propagation.] They are multiplied by their *Seed*, but more readily by their *Bulbs*, which are to be planted a Span deep in the Earth, and at leaſt the ſame Diſtance from any other Flowers.

He ſays, the *Martagons* Bulbs ſhould never be remov'd, but when you deſign to plant them again immediately; and that the Time for removing them is when the Flower is fallen, at which Time they quit their old Roots. Theſe Bulbs, that look like Scales, if they are planted at ſuch Times, they will in Time grow to be large Roots.

Mr. *Fairchild* ſays, the *Pompony-Martagon* is ſo great a Flower, that he has ſeen near Threeſcore Bloſſoms upon one Stalk.

Theſe Plants will bear Froſt better than Heat, and therefore it is proper in the Summer-Time to ſecure their Bulbs from the Heat of the Sun, by covering them with Layers of Earth, or by giving them Water frequently.

13. MARVEL of PERU.

THIS Flower is call'd the *Marvel of Peru*, becauſe of the wonderful Variety of its Flowers, which grow on the ſame Root: They are propagated by *Seeds*, which are to be ſet the Beginning of *April*, in hot Beds, from whence they are to be remov'd into rich Earth, where they may have the Benefit of the Sun. They flower from the beginning of *Auguſt* 'till Winter, if they are defended againſt the Froſts: If they fail to flower the firſt Year, they muſt have Horſe-Dung and Litter laid to them before the Froſts, and be kept cover'd all the Winter, and this will cauſe them to flower the more early the Year following. After they have done flowering, the Roots are to be taken up and dry'd, and wrap'd up in woollen Rags, and ſo kept from Moiſture all the Winter: If they be ſet in the Beginning of *March*, they will thrive and bear. See *Nightſhade*.

14. MARYGOLDS.

MARYGOLDS are multiply'd by *Seed*; they flower moſt Part of the Summer, and in Winter too, if it be mild; they may be tranſplanted at any Time in moiſt Weather.

Monſ. *Liger* ſays, *Marygolds* are ſown in Beds in *March*, and in open Ground in *September* or *October*, or they will not thrive: If it be in open Ground, it ſhould be in ſome Place that does not lie expos'd to the *North*; they muſt be well water'd and weeded, and in Winter ſhould be cover'd with Mats or dry Dung, and ſhould not be uncover'd till the Heat of the Sun begins to be ſenſible; they may be cultivated in Pots and Boxes. They will look very well in a Garden, their Flowers growing in Rays, and being of a beautiful *yellow*.

15. The DOUBLE MARYGOLD.

THIS Plant is call'd by Botaniſts, *Caltha Flore pleno lutea*; and differs little from the Former, except that the Flowers of this are compos'd of many more Leaves This is rais'd of *Seeds* ſown in *March*, and often on Hot-Beds, tranſplanted and manag'd like other Plants. See *Amaranthus*.

16. AFRICAN MARYGOLDS.

THERE are Three ſorts of *African-Marygolds*, which are to be rais'd of *Seeds* ſown in *April*, and ſome ſow them in a Hot-Bed; but in a favourable Spring they will thrive well enough without. They are a Flower that blows late, as in *Auguſt* and *September*, and therefore more Care ought to be taken of them, they being a Plant to be renew'd every Year. The Seed ſhould be gathered of the largeſt Flowers. They delight in a light Mould; and when newly ſown muſt be watered, and require much Sun. See *Ficoides*.

17. FIG MARYGOLD, *ſee* FICOIDES.

18. FRENCH MARYGOLD, *or* INDIAN ROSE.

THIS Plant Monſ. *Liger* deſcribes thus; It ſhoots out a branchy Stem, of about Three Foot high, along which grow oblong Leaves, indented on the Edges, and growing many together on one Side; at the End of theſe grows a ſingle Leaf, of a *green* Colour, pointed at the Top; at the End of the Branches grow the Flowers in ſeveral Flouriſhes, divided into many Parts, ſeated on an Embryo, and contain'd in a ſcaly Cup, almoſt half round: This Embryo becomes a Seed long and blackiſh.

This Plant will thrive in any *of tolerably good Earth*, and *ires no more than a* common Culture; or if you would be curious, ſee the *Female Balſam-Apple*: It will bear the Weather, but requires to be watered and weeded.

This Plant, ſays Mr. *Fairchild*, will make an agreeable Mixture in Borders, with its beautiful Velvet Flowers intermix'd with *yellow* and *red* Colours. It flowers ſeveral Months, and is one of the moſt agreeable Annuals we have. It may be ſown in the Spring, to make a large Plant; but Mr. *Whitmil* ſows them in Winter, that they may bloſſom in a narrow Compaſs the ſucceeding Spring, for the Sake of thoſe that have but very little Room.

19. MASKETS, MACHES, *or* CORN SALLADS.

THESE are multiply'd only by *Seeds*, which are very ſmall, and of an *Orange* Colour; and are a ſort of little Sallad that is term'd wild or ruſtical. They are ſown in Beds about the End of *Auguſt*, and are hardy enough to endure the Rigour of the Froſts; and if let alone, will propagate themſelves without any Culture but Weeding.

20. MASTERWORT.

IS rais'd of *Seeds*, or *Runners* from the Roots.

21. MATERNUS.

IS a Shrub which is very hardy, and a ſort of Species of the *Phyllirea*, and does as well for

Hedges, being as eaſily manag'd.

22. MATTED.

MATTED Roots are ſuch as are entangled or platted together.

23. MAUDLIN, *or* COASTMARY.

IS rais'd by *Slips* or *Seeds*; and flouriſhes moſt of the Summer-Months.

24. MAXECHITTLE, *ſee* SCARLET JASSEMINE.

25. MAY.

Work to be done in the Kitchin-Garden, Orchard, &c.]

THE Showers which frequently fall about the beginning of this Month are often mix'd with Hail, which are very injurious to Vegetables, their Leaves and young Fruit being tender: But after the Fifteenth of this Month the Weather commonly grows favourable, and Gardeners commonly ſet abroad their Exotick Plants and tender Shrubs, that have been confin'd in the Green-houſe.

If this Month proves dry, it gives great Hopes of Plenty of Corn; and if cold, it is an Omen of good Health.

If any thing of Work remain undone, which ſhould have been done the laſt Month, let it be done in this.

Thin your Salleting *and other Herbs, that what you leave may thrive the better.*

Look to the *Melon-Ridges*, as well thoſe made in *February* as thoſe in *April*; weed them, and prune off the Water-Branches, which you may know by their Flatneſs, and extraordinary Breadth.

About the middle of this Month, ſow *Cucumbers* in the natural Ground, to be ripe in *July*: And ſow alſo the *Dutch Brown Lettuce*, to be planted out the next Month for Cabbaging. Set *Sage* and *Roſemary*; ſow *Purſlain*, and cover your *Cucumbers* no longer. If you have any *Imperial* and *Sileſia Lettuces* large enough to be replanted, replant them; and if any of the *Imperial* are already cabbag'd, cut the Tops of them croſs-wiſe, that the Flower-ſtems may have Liberty to ſhoot, in order to their Seeding.

Plant all ſorts of Winter-greens, and ſow the more tender Seeds, as *Sweet-Marjoram*, *Baſil*, *Thyme*, and hot *aromatick* Herbs and Plants.

Tranſplant *Colly-flowers*; ſow *Radiſhes*, *Rounceval-Peas*, *Purſlain* and *Cabbages*, upon natural Ground; and *Endive*, to be blanched, without Tranſplanting. If your Plants are large enough, make your firſt Drills for *Sellery*.

Smoak your Orchard; bind *Hops* to the Poles, and make up the Hills after Rain. Deſtroy Neſts of Caterpillars, and Weeds, eſpecially thoſe that have feathered Seeds, ſuch as *Dandelyon*, which are by the Winds carried all over the Garden, and are hardly to be rooted out. Now ſet your Bees at full Liberty, and expect a Swarm.

Products of the Kitchin-Garden, &c.

Aſparagus in Plenty; *Colly-flowers* in Perfection, many ſorts of *Cabbage-Lettuces*, *Burnet*, *Purſlain*, *Cucumbers*; *Kidney-beans* on Hot-beds, *Artichokes*, *Peas*, *Beans*, *Gooſeberries* for Tarts. *Carrots* ſown in Hot-beds in *February*, *Spinach*, *Scarlet-Strawberries*, *May* and *May-Duke-Cherries*, *Green-Apricocks.*

Work to be done in the Flower-Garden, and Green-houſe.

Cut down the Leaves and Flower-ſtems of bulbous rooted Flowers, that have done Blowing, except you deſign them to ſtand for Seed. Gather *Anemone*-Seed; ſow *Carnation*-Seed. Shade your choice *Tulips* from the Noon-Sun and from Rain. Tye up the Spindles of *Carnations.*

Sow annual Flowers, as the *Annual-Stock*, *Candy-Tufts*, *Venus Looking-glaſs*, &c. Water *Ranunculus's*, and plant out *Amaranthus's.*

About the Tenth, *inarch Orange* and *Lemon-Trees*; the *Spaniſh white* and *Indian yellow Jaſſemine* on Stocks of the common *white Jaſſemine.*

If the Weather be gentle and ſettled, when you ſee the *Mulberry-Tree* put forth, or about the Fifteenth, bring the *Orange* and *Lemon-Trees* out of the Conſervatory; cleanſe their Leaves from *Duſt*, if a Shower of Rain does *do it; give them freſh* Earth *e Surface; and alſo* tranſ- *and remove them.*

Towards the End, cut ſome Leaves off the *Opuntia* or *Indian Fig.*

When the Weather is ſettled, tranſplant from the Hot-bed to open Borders, all your *choice Annuals*, as *African* and *French Marygolds*, *Amaranthus's*, *Baſils*, *Capſicums*, *Convolvulus's*, &c.

Plant the Cuttings of the *Paſſion-Tree*, and the Cuttings of the *Pyracantha* of the tender Shoots.

Flowers now Blowing.

Aloes, *Anemones*, *Annual-Stocks*, *Antirrhinum*, *Aſphodel*, *Spaniſh-Broom*, *Candy-Tufts*, *Canterbury-Bells*, *Columbines*, *Cyanus*, *Cytiſus*, *Double-Daiſies*, *Featherfew*, *Ficoides*, *Fox-gloves*, *Fraxinella*, *Geraniums*, *Stock-Gilliflowers*, *Double yellow Globe-flowers*, *Gladiolus*, *Honey-ſuckles*, *Laburnum*, *Lark-ſpurs*, *Lilies*, *Lupines*, *Single-ſcarlet Lychnis*, *Martagons*, *Marygolds*, *Monks-hood*, *Mulleins*, *Nymphea*, *Oranges*, *Orchis*, *Double-Pinks*, *Sea-Pinks*, *Periwinkles*, *Pyracantha*, *Pæonies*, *Poppies*, *Ranunculus's*, *Double white Rocket*, *Roſes*, *Guilder-Roſes*, *Spirea's*, *Spiderworts*, *Sweet-Williams*, *Syringa*, *Tulips*, *Valerian*, *Venus Looking-glaſs*, *Musk-Violets*, *Wall-flowers.*

26. MEADOW-SAFFRON, *ſee* SAFFRON.

27. MEDLARS.

THE *Medlar-Tree* delights in loamy natural Soil, and requires but little Sun; it is propagated by Grafting upon the *Haw-*

thorn in *March*; and is only fit for Standards in the remote Part of a Garden. This Fruit (contrary to all other Fruits) is not fit to be eaten till it is rotten or decay'd.

28. MEDULLA.

MEDULLA is the Pith or Heart in Trees or Plants.

29. MELIANTHUS.

THE *Melianthus*, ſays Mr. *Bradley*, is, as he ſuppoſes, call'd *Melianthus* or *Honey-Flower*, from a Drop or two of clammy Juice which theſe Flowers afford, taſting as ſweet as Honey, is an *African* Plant, yet bloſſoms freely with us, if they are not uſed too tenderly; there are of it two Sorts, the *Greater* and the *Leſſer*. The larger Sort, produces Spikes of Flowers every Year of a *Coffee* Colour, and is ſo hardy that it will bear to ſtand abroad all the Winter.

The ſmaller Sort is not ſo common in *England* as the larger; the Flowers are very beautiful, having in them a Mixture of *Red*, *Green*, and *Yellow*; theſe are accounted more tender than the former, and are commonly kept in the Green-Houſe; but he is of Opinion that theſe alſo might be enur'd to ſtand abroad in the Winter as well as the larger Kind.

Both theſe Kinds may be eaſily propagated by *Slips* from the *Roots*, taken from *the Roots* any *Time between May* and *Auguſt*; they love a ſandy Soil and plentiful Watering, eſpecially the larger Sort.

30. MELONS.

MR. *Collins* ſays, *Melon-Seed* will retain its prolifick Quality, if it be kept dry, ſo as to grow at the End of twenty Years; but then before it be ſown it muſt be ſteep'd in ſome Liquor that is not corroſive as Milk, or Mead, and that according to its Age. If it be ſix or ſeven Years old, it will grow pretty well without ſoaking; if it be ten Years old, twelve Hours will be enough; if it be twenty Years old, twenty four Hours.

He ſays, that though Seeds of one or two Years old will not fail to grow; yet there is a Diſadvantage in all ſuch Seeds, that they will ſpend themſelves too freely in their Vines without fruiting. And on the contrary, the ſuperfluous Sap is very much corrected by the Age of the Seed, their Joints will be ſhorter, their Number greater, more hardy and better taſted.

Mr. *Bradley* ſays, that all freſh Seeds of *Melons* will produce mnch larger Vines than thoſe Seeds that have been kept ſeveral Years. That new Seed is apt to draw ſuch Plenty of Nouriſhment, that it is ſeldom prolifick; for too haſty thriving is always an Enemy to breeding or prolificity: ſo on the other Hand, when he has ſown Melon Seeds of ſeven or eight Years old, the Vines have been cl

join

jointed, and more ſubject to bear Fruit.

The Kinds of Melons.

Mr *Collins* (of all the Kinds of *Melon* Seeds which are many) recommends the ſmall *Galloway*, the *black* and *white Spaniſh*, the *wrought green Turkey*, the *Italian Wharted*, and the *French large Melons*, and the *black* and *red Water-Melon* ; but the laſt are very difficultly rais'd in *England.*

He adds, That the Seed ſown in *England* loſes Part of its Colour and more of its Taſte ; and therefore adviſes to get the Seed from abroad once in three Years.

He ſays, That whereas ſome are of Opinion that the ſteeping the Seeds in ſeveral Sorts of Wine will mend the Taſte of the Fruit, he aſſerts that it will have no ſuch Effect.

This Fruit are uſually call'd *Musk-Melons* from the Pleaſantneſs of their Scent. Mr. *Mortimer* reckons only two Sorts, *the large ribb'd Melon*, and the ſmall *round Melon.*

Of making the Seed Beds]. Mr. *Collins* directs the hot Beds to be made with Litter from the Dung that has been made about a Month or ſix Weeks, about five Foot wide, and four Foot high, and of what Length ſhall be thought convenient. He orders that Straw be laid on the Bed a Foot thick, which will raiſe the Heat equally in three *four Days. If this be not ; he ſays, it will* be apt to riſe in Patches. Then the Straw being taken away, the Bed is to be cover'd four Inches deep, either with rotten Dung of the laſt Years Ridges, or elſe with Cow Dung.

Of ſowing Melon Seed]. He adviſes to ſet two Rows of Glaſſes the length of the Bed, and as much toward the Middle of it as can be to preſerve Heat; and to raiſe little Hills of rich ſifted Mould where theſe Glaſſes are to ſtand, which when made flat at the Top, will remain about ſix Inches Diameter wider than the Glaſs ; and theſe Glaſſes are to ſtand four Inches one from the other; to find out when the Heat of the Bed riſes, you may thruſt in your Finger.

He adviſes then to ſcatter the Seed on the Hill, ſo as it may come up two Inches diſtant under the Glaſs ; and that it be prick'd in about an Inch and cover'd.

The Time]. He accounts the beſt Time for ſowing *Melons* to be about the 12th of *February*, and then the Plants will come ſtrong and large, and will be fit to be planted out toward the End of *March*, and ſo forward till the middle of *April*, and ſo you will have *Melons* to cut in *Time*, which Times of ſowing ; he having obſerv'd never miſs'd of a Crop for more than twenty Years.

He adds, that ſome to have them early ripe ſow them the beginning of *January* or ſooner, and have ſome ready to cut in *April*; but then this early Fruit will neither be ſo fine to the

Eye, nor delicate to the Palate; becauſe the Air will ſhrink the Vines and make them ſmall, and the Sun which gives them both their Colour and Taſte, is too far diſtant at that Seaſon to afford them ſufficient Heat. But ſuch alſo muſt, he ſays, be raiſed in Pots and renewed into freſh Beds to continue an equal Heat.

Culture after Sowing]. The Seeds ſown, as he has before directed, he ſays will appear in four or five Days. And if the Sky proves clear, they muſt have but little Sun, becauſe it will ſoon draw the Heat of ſo freſh a Bed to that degree, that in an Hour or two's Time, the Leaves which are call'd the Deaf Ears will twirl or coffer; and if the Weather proves ſtormy or cold, they muſt have but little Air.

When they have grown, that their third Leaf is as big as a ſix Pence, the ſtrongeſt of them muſt be taken off, and eight or ten of theſe muſt be prick'd at equal Diſtances all over the Glaſſes. You muſt alſo ſtir up the Mould and ſmell to it, and if it be grown fuſty, you muſt mingle ſome freſh Mould with it.

A little Water, he ſays, will make the Plants ſtand the Sun the ſooner, eſpecially if the Weather be fine, and he gives this Reaſon for it; that as long as the Water fills the Pores of the Earth, the Beams of the Sun cannot hurt the Root of the Plant.

Of Covering them.] He recommends Wheat Straw as the beſt and *warmeſt* Covering for them, and prefers it before Mats; becauſe the Straw may eaſily be laid cloſe between and round about as well as on the Top of the Glaſſes, as much as you pleaſe, and according to the Coldneſs of the Weather, or Age of the Bed.

Glaſſes better than Frames.] He ſays, he approves of Glaſſes as better to raiſe *Melons* than Frames, becauſe if a Damp ſhould ariſe in one part of the Bed, it will not affect the Whole, and may be eaſier let out from under a Glaſs than a Frame, without chilling the whole Bed.

He adviſes that the Glaſſes be taken off and wip'd in good Weather for about an Hour at a Time, and ſet by to dry the Bed, which will carry the Plants till they come to the Ridge.

If the Plants grow tall, he adviſes to cut them off, and to have but two Joints that they may throw out ſtronger and more proper Vines in order for the Ridges; but then this pruning muſt be about ten Days before they are remov'd to the Ridge, and in fair Weather.

As for any Objection made againſt Straw, as to its harbouring of Mice which will crop off the Plants, he ſays, the Mice will ſeldom hurt the Plants, becauſe there is generally ſome Corn in the Straw; but that may alſo be prevented by ſtrewing ſome Corn under the Glaſs, which will divert them till they can be caught in Traps.

Of making Ridges.] Towards the latter End of *March*, or the Beginning of *April*, you may begin to make Ridges for your *Melons*, of the ſame Kind of Dung you made the Seed-Bed; make them about four Foot wide, and two Foot and a Half high, tread it down well, and water it to the Bottom, and in two or three Days the Heat will riſe, then cover it with cold Dung of the laſt Year about three Inches thick, and beat it down cloſe with the Back of the Spade, and the next Day the Heat will come thro' this Covering, and then make the Hills for the Plants about ſix Inches deep of warm good Mould, as is directed in the Seed-Bed.

Of tranſplanting them on the Ridges.] The next Day plant the Plants under a Glaſs, ſetting them up to their Necks in Mould, do this in the Evening, and water them immediately. Let there be five Foot Diſtance between Plant and Plant; and lay a Wiſp of Wheat or Peas-Straw on the Glaſs, againſt the Sun, only for three or four Days, which is better than Mats.

He adds, that four Foot being allowed for the Breadth of the Ridge, which is ſufficient to keep the Plants warm, and to allow for the ſhrinking of the Roots, in about three Week's Time the Plants will have crept to the Outſide of the Ridge; and then you muſt lay Mould all over the Ridge, as deep as you did under the Glaſſes. The Bed lying ſo long uncover'd was only to *ſpoſe of* that nauſeous Heat, *ich at firſt did riſe* from the ig.

Then three Weeks after you have made your Ridge, you muſt fill up two Foot of the four Foot Alley that you made between your Ridges towards the *South*, and ten Days after that fill up two Foot more towards the *North*, and lay good Earth about eight Inches deep on theſe laſt Alleys; and this will cauſe and preſerve an additional Heat, till a great part of your Fruit is ſet, which if the Beds were made ſo wide at once, moſt of the Fruit for the firſt Fortnight would drop off.

The Plants ſhould be watered aſſoon as ſet, to preſerve their Leaves from falling off; for at firſt too much Steam will be apt to ariſe, and the Stench of a freſh Bed will occaſion them ſo to do. Therefore the Mould muſt be pull'd away about three Inches wide, and one deep on two Sides of the Glaſs, that the Air may come in, which will force away the Steam.

How to order them on the Ridges.] The Plants, as he had directed, having been taken off at the Middle of their ſtrongeſt upright Branch in their feeding Bed. He does not think there will be any occaſion of pruning them on the Ridges, till they are not to be kept within their Glaſs. And their Mould being laid all over the Bed eight Inches thick, he adviſes, that one Perſon ſhould take off a Glaſs, and hold the Branches of the Plants from the Bed on one ſide, while another with his Foot treads flat, and with his Toe cloſe to the Roots of the Plants, gently at firſt round the Hole, and afterwards ſo hard that it will bear his Weight, and ſo backward round the Hole, ſtill keeping his Toe towards the Root.

He gives this Reaſon for this Direction, becauſe if this Treading were not done cautiouſly by going acroſs the Ridge, the yielding of the Mould would tear the Roots to Pieces.

When this is done in each Hole, the whole Ridge muſt be trampled with the Alleys, which are ſuppos'd now to lie at an equal Height with the Ridge. But this ſhould not be done in wet Weather, if it can be help'd, becauſe then the Ridge will be apt to crack.

When this is done, hold up the Plants again, and lay a Baſket of dry Mould from the Roots of the Plants to near a Yard wide, and an Inch thick, as looſe as you can round each Hole.

If after this any part of the Bed or Alleys ſhould crack, they muſt be houghed for about an Inch.

In this way of Management, he propoſes two Advantages.

1. That the Ground being trod ſo hard, and being kept ſo looſe to the Roots, ſupplies more Nouriſhment; and the Beams of the Sun (which, he ſays he has known, kill extraordinary good Crops of Fruit, by darting too freely through the Pores of ſuch hollow Earth) are thereby kept out; and as the Drought cannot get in, ſo they cannot want much Water, which *ſpoils both the Colour and Taſte of Melons*, and alſo often decays the Roots themſelves.

2. The Ground being kept ſo cloſe, the Heat which ariſes from the Dung cannot ſo ſoon evaporate, and therefore muſt invigorate the Plants a longer Time.

He adviſes Watering not above twice or thrice in a Seaſon, and that in an Evening: But if the Weather prove hot and dry for a long Time, if the Root wants Water, ſome Leaves will begin to coffer, and then they muſt be watered.

He ſays, That where it can be done, the Ground ſhould be hough'd, and the Mould which was laid under the Glaſſes ſhould be ſtirr'd with the Back of a Knife, very fine and light, which will break thoſe little Pipes and Channels that Watering had forced; and when duſty, the Sun cannot pierce it as before.

Of Pruning Melons.] Theſe Plants are to be prun'd diſcretionally, according to their Healthfulneſs; ſtrong and hardy Plants require more Pruning than thoſe that are weak and tender: When *Melon*-Plants throw out a great many ſmall Vines at Three or Four Inches Diſtance from the Root, you muſt prune away half the Number of them with a Pair of Sciſſars when there is a clear Sky, or otherwiſe it will be apt to rot the Vines; and whatſoever you cut off, you muſt leave an Inch and a Half from the Joint below it.

He ſays, That it is the common Practice of Gardeners, to cut off the Vines a Joint or Two beyond the Fruit, becauſe they ſay, *That the Sap has the leſs to feed, and conſequently the Fruit will be the larger.*

But he having directed the Setling of but Two Plants in a Hole, and at Five Foot Diſtance, which will cover the Ridge, there will be a Neceſſity (with Sciſſars) to cut a Foot wide on each Side, to walk, prune, water or gather the Fruit.

His Practice is, inſtead of ſtopping the ſtrongeſt Vines, to take off half the weak ones, which take away more Nouriſhmént from the Root, than what grows beyond the Fruit upon the ſtrongeſt Shoots. And beſides, he ſays, the Sap draws more freely to the Fruit, when it has the Liberty of paſſing by it for ſome Diſtance, than when it is oblig'd to ſtop at the Fruit; for there are different Natures in a Plant; the one proper to the Growth of the Vine, and no Vine can have the Strength which by Nature it ought to have, 'till both are made exertive of their Qualities.

Therefore he adviſes, That if you do prune, to leave at leaſt Four Joints beyond the Fruit.

But his chief Reaſon, he ſays, for leaving half the ſmall Vines in each Hole, is, That the greateſt Part of the Crop is expected from thoſe Vines, becauſe growing neareſt the Root, they always produce the beſt taſted Fruit.

He adds a Remark, That generally towards the latter End of *June*, Showers of Rain fall, and after that, the Sun ſhines upon the Plants with ſo great Heat, *that where a Drop of* Wet hangs *pon a Vine, the* Beams of the Sun, in drying it up, will draw a Hole in the Vine, which Hole will imbibe the water the next Rain that falls, and rot the Place, and cauſe the Loſs of a great Quantity both of Fruit and Vines; which if it happens, they will want no Pruning.

As to knowing the Ripeneſs of *Melons* by the Cracking of the Stalk at the Head of the Fruit, or by Smelling under the Glaſs or to the Fruit, he ſays, ſome Kinds of Fruit, having thick Rinds, will crack at the Stalk, and be fit for the Table before the Scent can penetrate.

He hints alſo, That Ladies ſhould not be invited into a *Melonry*, leſt Nature ſhould at that Time be in its Venereal Diſcharge; becauſe it has not only an imaginary, but ſo real an Influence on *Melons* newly ſet, that they will moſt of them drop off: This, he ſays, he has had the fatal Experience of, ſo as to be obliged to deny them Entrance into his *Melonry*.

Their Culture.] After they have been planted about a Fortnight, they will be in a growing Poſture, and then if the dry *Eaſterly* Winds are ceaſed, the Glaſſes ſhould (in the Heat of the Day) be tilted up an Inch, for Two or Three Hours, to give them Air, that they may be enur'd to the Weather by Degrees.

Suppoſing the Plants to be fully ſet, the common Time allow'd for their Ripening is Forty Days, during which Time, if the Earth be very dry, they ought to be watered now and then, but very ſparingly, becauſe they delight not in abundance of Water; nor will the Fruit be ſo well taſted, if the Plants are kept too moiſt.

It is a common Practice, when *Melon-Plants* are ſet, to pinch or prune off the Running Branches two Joints above the Fruit, ſo that all the Sap of the Branch may be turn'd into the young Fruit, to nouriſh it, which will contribute to making the Fruit larger, if it be well defended with Leaves from being ſcorch'd with the Rays of the Sun, during the Time of its Growth: But afterwards it cannot be well too much expos'd to the Heat of the Sun, (even altho' it receive it through a Glaſs) which will forward the Ripening of it; and it may be known when it is come to its due Ripeneſs, by the agreeable Odour it will ſend forth.

While the Vines are growing, the Earth they run upon ſhould be kept well weeded, and the Surface ſhould be gently ſtirr'd, becauſe their Roots are tender, and always ſhoot out in Length as far as the Branches reach.

Mr. *Bradley* mentions three Things practiſed by Gardeners, in the Culture of *Melons*, which he does not well approve of,

1. When a *Melon* is in Bloſſom, they pull off all the falſe Bloſſoms, becauſe they imagine they would weaken the Plant: Whereas he ſays, If thoſe are the Male-Flowers, as they ſeem to be, then it is they that are ordain'd by Nature to ſet the Fruit, and it muſt needs be very injurious to the Plant to pull them off.

2. It is a common Practice to lay the ſeveral Leaders of the Vines at *equal Diſtances* from one another, and often to lift them up to view the young Fruit, which is very prejudicial to them, becauſe the Veſſels that convey the Juices to the Fruit are very tender, and are liable to be bruis'd by the leaſt bending from the Place of their natural Growth.

3. It is very common to expoſe the Fruit to the Sun, by taking away the Leaves from about it, which is prejudicial; for the Beams of the Sun falling directly upon Plants, dries and pinches their Veſſels; ſo that the Sap not having a free Paſſage, it cannot fill the Plant ſo ſoon and ſo plentifully, as if the Parts were larger and more open, as they always are in the Shade: For the immediate Heat of the Sun is not neceſſary for the Growth of the Fruit, but only for the Ripening of it; for any ſort of Fruit grows beſt in the Shade.

Mr. *Mortimer* ſays, The *Seeds* of *Melons* ſhould be ſteep'd in Milk for twenty-four Hours before they are ſown; and ſome ſteep them in Wine and Sugar; they ſhould be ſown in Hot-beds in *February*, at the Full of the Moon, putting two or three in a Hole about an Inch deep; and that towards the End of *April* they are to be taken out of the Hot-bed, and planted at two Foot Diſtance in the Places where they are to grow all the Summer in Beds, wherein large Holes being made, are to be fill'd with a rich, light Mould. Care alſo is to be taken in Planting them, that neither the Roots or Plants do touch the Dung. The beſt Time of Planting them, is an Evening, after a fair Day, after which they muſt be watered and defended from the Sun and Cold for three or four Days together. If the Ground you plant them on be wet Ground, or ſuch as is apt to hold Moiſture, then lay Bruſh Faggots at the Bottom of the Trench, to make the moiſture ſink away from the dung.

When the Earth is very dry and hot, they muſt be moderately water'd two or three Times a Week; but you muſt take Care not to wet the Leaves. If the Weather be too rainy, cover them; for too much Wet is very prejudicial to them.

If you perceive no Fruit, he adviſes to cut off the Tops, to make them bear; and when the Fruit begins to appear, to cut off thoſe Bloſſoms that are likely to bear no Fruit; and alſo the barren Branches and ſmall Tendrils, and whatſoever you may think may rob the Fruit of its Nouriſhment, leaving not above three or four *Melons* upon one Plant.

Nip off the ſmall Shoots, that draw off the Sap of the leading Branches, and leave not above three or four of the moſt vigorous Branches, whoſe Knots grow neareſt to one another: When the *Melon* is grown about the Size of a Tennis-ball, nip off the Shoot at ſome Diſtance beyond them; and if you leave not above one *Melon* on a Branch, it will make them grow the larger; and always leave that which is neareſt the principal Stem, the reſt being of little Value.

He adviſes to peg the Branches down with hooked Sticks, to hinder the Wind from blowing them about; and alſo to heighten them up with ſome good warm Mould when they are in Bloſſom, and that will prevent them from falling off.

When the *Melons* are grown large, you may cover them with ſquare Glaſs-Caſes or Glaſs-Bells, ſet ſo that a little Air may get under the Glaſs at Night, and lay a Tile under each *Melon*, that it may lie the warmer.

When the Fruit is ripe, turn it three or four Days before you cut it, that it may be the better ripened on all Sides: You may know when they are ripe, by the Odour they yield, and when they begin to gild and grow *yellow* underneath, and when the Stalk ſeems as if it would part from the Fruit. It is beſt to be eaten Twenty-four Hours after it has been gathered, and ſhould be firſt put into a Pail of cold Water, to make it eat cool and pleaſant.

The *Seeds* of the moſt early ripe ought to be preſerv'd; and thoſe *Seeds* that lie on the Sunny-Side of the *Melon* are the beſt.

Mr. *Bradley* ſays, The *Italians* have a *Melon* which is commonly ripe about *Chriſtmaſs*, which is eſteem'd among them as a Rarity, and is alſo cultivated in *England*; for the ordering of which, he gives the following Directions:

You muſt ſow the Seeds in a Bed moderately warm, towards the latter End of *April* or Beginning of *May*; when the Plants are come up, they are to be ſo ordered, that the Fruit may not come to its full Growth till the latter End of *September*, or Middle of *October*; the natural Warmth of the Summer will be ſufficient to effect this of it ſelf without the Aſſiſtance of Art, 'till the cold Evenings in *Auguſt* begin to come in, and then both Plants and Fruit muſt be ſhelter'd from the cold Dews and Froſts, 'till you think the Fruit is at its full Growth. In the Heat of the Day, you muſt ſtrip the Leaves off the Plants, and let the Sun dry the Stalks, and pull them up by the Roots, and hang them in ſome Place well expos'd, 'till they are more thoroughly dry'd, and afterwards hang them up by the Stalks in a dry Room, or lay them up in Bran or dry Sand, to keep them from the Air 'till *Chriſtmaſs*; and if at that Time you find they are not ripe enough, you may wrap them up in a Cloth, and lay them in a Horſe-Dunghill for Twenty-four Hours; and this will put their Juices into a Ferment, and add to their Ripeneſs.

The Ambition of *Gardeners* about *London*, being to produce *Melons*, *&c.* before and after their natural Seaſon, Mr. *Bradley* lays down the following Rules for *Raiſing* and *Cultivating* them at thoſe Times, as follows:

He ſays, It is uſual with Gardeners to make their Seed-beds for early *Melons* in *January*, altho' at that Time the Ground be covered a Foot thick with Snow. But this he does not approve of, as not being agreeable to the Courſe of Nature; For that it does not ſeem likely that ſuch tender Plants as they are, when they are *juſt forc'd out of the* Ground, will be able to withſtand the leaſt Air from Abroad, during the Continuance of ſevere Froſts and Blaſts: He therefore would have a Hot-bed about four Foot ſquare, and two Foot high, prepar'd for them in the firſt Week of *October*, and the *Melon*-Seeds ſown in it, as ſoon as the Heat is moderately abated. And when they have been come up a Week, he orders the Planting them out upon the ſame Bed four Inches apart, after the Earth has been very well ſtirred. And becauſe in this Month the Days are commonly warm, and that *Melon* Plants ought to have as much Air, as you can poſſibly give them in ſuch Weather; but the Nights being uncertain, they muſt be covered up cloſe with Glaſſes and Mats over them: By this Means the Plants may be made hardy, and ſtrengthened againſt Winter, which is rather to be aim'd at, than to draw or force them.

Thoſe *Melon*-Plants, that are in Hot-beds in *January*, muſt have the Influence of the Sun admitted to them through the Glaſſes as often as may be, to keep them from the Injuries they will be apt to ſuffer from the Steam of the Bed; for the Steam of the Dung at this Seaſon riſing in great Quantities, does condenſe upon the glaſſes, and by dropping from them on the tender Plants, rots them.

In order to correct this injurious Steam, Mr. *Bradley* recommends two Methods: The one is to allow at leaſt Six Inches thick of Earth to cover the Dung: The other is, to have Frames made of Woollen Cloth, to ſlide in under the Glaſſes; and theſe will receive the Steam that riſes in the Night, and may be drawn out every Morning without hurting the Plants, and be dry'd before it is put in again. The Damps being thus corrected, the Heat of the Beds may be recruited or preſerv'd, by laying hot Dung to their Sides every Fortnight or three Weeks.

And leſt the firſt Plants ſhould by ſome Accident be loſt, you may ſow *Melon-Seeds* on Hot-beds every Week.

He adviſes, That when the Plants are in the ſecond Joint, to plant them out into ſmall Baskets made with Oziers, open on their Sides, about four Inches deep, and ten Inches over on the Top, that when the Plants begin to run, the Roots may have Liberty to ſhoot out into the neighbouring Earth, of the Bed they are to ſtand in, without being replanted, which would endanger them; and that there is alſo another Conveniency in the Baskets, that they may be ſafely remov'd from one Bed to another.

In one of thoſe Baskets, he adviſes to plant five or ſix Plants, leſt any of them ſhould go off; tho' it is reaſonable to think that ſuch Plants, which have had the Advantage of a gradual declining Seaſon to harden themſelves in, will not be ſo ſubject to be injured by the Weather, or require ſo much Heat to maintain them, as thoſe that appear firſt in Froſt and Snow.

As the Bed they are ſet in cools, *he directs,* That the Back and Front of it be laid with freſh Dung; and to give the Plants as much Air and Sun, in the Day-time as may prudently be given them; and that in the Nights they be well covered with Straw and Mats; and then he does not doubt but the Plants will produce Fruit early enough.

He adds, That all annual Plants are as naturally diſpos'd to live from the *Autumn* to the *Spring*, as they are to flouriſh in the *Summer* Months, if they are kept from Flowering in the *Winter*; and that *Melon*-Plants are Annuals, and may as well be kept in the *Winter* as any other *Exotick Annual* whatſoever, if they were prevented from Bloſſoming before *Chriſtmaſs*, and in Proof of this,

He ſays, That he himſelf has kept young Plants of *Amaranths*, and of the *Naſturtium Indicum* 'till the following *Summer*, only in a common Green-houſe.

Mr. *Whitmill's* Management of *Melon*-Plants is as follows; When the Plants have been rais'd, and are fit to plant on Ridges, he plants them in a Border under a *South*-Wall, and lays no Dung at all about their Roots; and as the Plants grow up, he lays them gently againſt the Wall, and tacks them up to it, or trains them to run up ſome Frame; and when the Fruit ſets, he faſtens a Tile with a Hole in it to the Wall with a Staple, to lay the Fruit upon; the Deſign of the Hole is to keep the Fruit from too much Wet; and the Deſign of the bringing the Fruit to the Wall is, that it may ripen the better. Mr. *Bradley* calls this an ex-

excellent Way of producing *Melons*; and ſays, it carries ſo much good Reaſon along with it, that he is well aſſured that it cannot fail of good Succeſs.

He adds, That in order to preſerve all from the Weather, if the Lights that belong to the Hot-bed Frames be ſet ſloping againſt the Walls, he does not doubt but Fruit ſo manag'd, would ripen much better, and have a much higher Flavour than thoſe ordered in the common Way, eſpecially in a cold, wet Seaſon: That *Melons* are fram'd by Nature for climbing, he ſays, their Claſpers ſhew us; and that they are much better when propagated without Dung, there are abundant Inſtances: And that as to the *Long-gourd* and *Calabaſh*, he has had much larger againſt a Wall, than ever he could get upon a Hot-bed.

MELON-THISTLE *or* ECHINOMELOCACTOS.

Differing Sorts.] MR. *Bradley* tells us, he has had only two Sorts of this wonderful Plant *viz.* the ſmall Kind called *Echinomelocactos minor lacteſcens abſque tomento Cylindris ſtrictioribus*, which is figured in the *Paradiſus Batavus*, and the larger Kind which grows in St. *Chriſtophers* and the other *Caribbee-Iſlands*, a Cut of which may be ſeen in *Gerards* Herbal.

Deſcription.] The firſt of theſe is ſeldom bigger than a large Apple, and grows out of the Ground like a ſolid Fruit, covered over with little Knots, bearing ſome Reſemblance to green *Barberries* ſet cloſe together, having little Stars of Thorns at their Points, of a *Cinamon* Colour; the Fruit cracks out in hot Weather, full ripe, of the Shape and Colour of a ripe *Barberry*, but they remain a long Time, upon the Plant.

The latter is a ſolid Plant, it grows out of the Ground like the Fruit of a large *Pumkin*, but is ribb'd like a *Melon*, and is very green; it has long ſtar-like Thorns of a *Coffee* Colour plac'd one above another on the Edges of each Rib: A Lump of a Subſtance like Cotton, covered over on the outſide with ſhort tender Spines, of a *Cinamon* Colour, grows on the Top of this Plant. In a hot Day, out of this the Fruit burſts forth, the Fruit when full ripe is about the Bigneſs of a *Cornelian-Cherry*, and of the ſame Colour, and uſually drops off two Hours afterwards. In *Barbadoes* this Plant is called *Pope's-Head* or *Turk's-Cap.*

Both theſe Kinds grow in *America*, npon the Rocks near the *Equinoctial-Line*, and therefore are very tender. Mr. *Bradley* ſays, he has rais'd the ſmall Kinds from *Seeds*, which he ſow'd in Lime rubbiſh, and afterwards preſerv'd them for ſome Time, but they were not hardy enough to bear the Severity of the hard Winter. But tho' they are tender, if they be humoured in their own way with a proper Soil and kept dry, they may be preſerved as well as the *Torch-Thiſtle*

There is one of the larger Sort of *Melon-Thiſtle* to be ſeen at this Time in the Stove at *Hampton-Court.*

The beſt Way to procure theſe Plants, is to have them from *America* well grown, and they muſt be kept without Water during the Voyage.

MELONRY.

A Melonry is a *Melon* Ground or an Apartment in a Garden for the Propagation of *Melons.*

Mr. *Collins* gives us this Deſcription of his *Melonry*, as one that he beſt approves of; That it is in Length about nineteen Yards, and in Breadth ſixteen, being fenc'd with a Hedge of *Yew* on the *North-Eaſt* and *Weſt*, and lying open full *South* for about ſix or ſeven Yards Diſtance from the common Ground where there is a Wall of about ten Foot high: The Hedge ſlopes at both Ends from *South* to *North*, and from about five Foot high on the fore Part to between nine and ten on the hinder Part, to keep off *North* Winds.

Within this Hedge the Ground is all taken away for ſixteen Inches deep, except the Width of one Yard round it; but the Banks are ſlop'd that they may not fall in cloſe againſt the *South* Bank. *Eaſt* and *Weſt* there runs a Hedge about four Foot high,, and three more ſuch Hedges in a parallel Line, and *eight Foot* Diſtance are ſet wn: *Theſe take* in three Ridges, only the outermoſt Ridge lies to the *South* unfenced, but is in ſome Meaſure protected from the Winds by the Wall before mentioned.

Theſe four Ridges do not ſo take up the Width of their Ground, but that there are about three or four Yards in Width, and about ſeventeen in Length to ſpare, which are employed to lay the Mould, which is yearly taken from the Ridges with a little Dung, and laid together to take the prolifick Benefit, which the nitrous and ſulphureous Qualities of *Froſt* and *Snow* do wonderfully infuſe; the Reaſons for this his Model are. Firſt as to the Hedges; that *Yew* is allowed to be the fineſt and beſt Fence imaginable, becauſe that it grows ſo thick and cuts ſo cloſe, that it ſecures againſt Winds, and will grow to what Height you pleaſe, and is alſo hardy and durable: Then as to digging away the Ground ſixteen Inches, that is done to prevent the Beds lying too high, and ſo very dry in Summer.

And beſides, the Dung would not retain that Moiſture with its Heat ſo long as is neceſſary to Growth, nor would it otherwiſe have lain ſo much under the Wind; the Hedges (ſuppoſing the Plants in the Ridges between to lie nine Inches under them) will ſo far break off the Wind, that the Vines may be permitted to come from under the Glaſſes much ſooner, and with more Safety than if there were no ſuch Hedges.

He adds, that this *Melon* Ground may be fenc'd with an Hedge of Reed till the Hedge of *Yew* is grown.

33. MEZEREON *or* DWARF-BAY.

Deſcription.] MR. *Bradley* mentions two Sorts of *Mezereon*; that with the *red* Flower and that with the *white*; that with the *red* Flower is common, but that with the *white* Flower more rare; they are both Dwarfs, ſeldom growing to above the Height of three Foot, but yet are endued with two Excellencies, which make them more valuable than *Trees* that are much taller; the firſt is, That their Stalks are adorned with Flowers in *January*, which remain a long Time in Bloſſom; and the ſecond is, the Odoriferouſneſs of their Scent; they afterwards produce a beautiful Fruit.

Mr. *Mortimer* thus deſcribes them; they riſe according to their Age to two, three or four Foot high, in a Buſh full of Branches, with *whitiſh* round pointed Leaves, which do not appear, till the Flowers are paſt, which are ſome of a pale *Peach* Colour, ſome *red* and others milk *white*, and ſweet ſcented, which are ſucceeded by ſmall Berries, which when ripe are of a delicate *red*.

Mr. *Bradley* ſays, he has eat ſome of the *Berries*, which were not unpleaſant in Taſte, but about an Hour after he had ſwallowed them he found an extraordinary Heat in his Throat, which caus'd a violent burning Pain for about twelve Hours.

Way of Propagation.] Mr. *Mortimer* ſays, the *Berries* and *Seeds* are to be ſown as ſoon as they are ripe, in Boxes of good light Earth; or elſe ſuch Earth muſt be laid under the Plants, for the *Seeds* to fall into as they ripen, which muſt afterwards be covered with the ſame Mould but not too thick.

Soil.] A loamy *Soil* is moſt proper for them, and the *Seeds* are to be ſown in *March*, if they can be ſav'd from being devoured by the Birds, who are great Lovers of them; this Plant is a ſlow grower, and may be ſet either in *Parterres* or Wilderneſs Works for its delightful Bloſſoms, but chiefly in a Winter Garden.

34. MICROSCOPE.

A *Microſcope* is an optical Inſtrument, which magnifies Things extreamly, by Means of which the ſmalleſt Things may be diſcerned.

35. MILDEW.

MR. *Cook* tells us, That *Mildew* is a Dew which is drawn by the Sun from the Earth and Herbs, in a dry and calm Time, and when Herbs are in their Prime, and want Winds to fan off their Groſſneſs, and being drawn from Herbs, which make it thick and ſweet, and not ſo active to aſpire, it is moſt in incloſed Grounds and Valleys, and in ſuch Grounds that lie tending to the *Eaſt*, as all Blaſting Winds are.

The Reaſon he gives, why thoſe Grounds which lie from the *Horizon* to the *Eaſt* are moſt ſubject to this *Dew* and to *Blaſting*, may be the Sun's drawing theſe Vapours towards it, juſt as a great Fire draws the Air in a Room to it: So the Sun having ſet theſe in Motion, and not having Strength enough to draw them into the middle Region, to form them into a Cloud, he does yet draw them 'till he is below our *Horizon*; and then theſe *Dews* tend to the Earth, from whence they were exhal'd, and in Motion to the *Weſt*, do (as it were) fall upon that Ground which lies *Eaſtward* at Right-Angles; and therefore is moſt offenſive to them.

He ſuppoſes the Reaſon that Vallies afford more Moiſture than Hills, is becauſe of the *Dew* attracted from the Earth and Herbs, as before; (and that they do afford more Moiſture than Hills, is often ſeen by the *Miſts* which are more frequent on them than on Hills:) This being drawn up by the Sun in the Day-Time, and wanting Wind to aſſiſt its Motion, hangs in the lower Region, and when the Sun ſets, it falls upon the Plants with its thick, clammy Subſtance; and hinders the Sap of the Plant or Tree from aſcending to nouriſh its Flowers, or ſhoot in thoſe whoſe Bark is tender and young, and the Pores open with the Heat of the Seaſon.

He adds, That he has often *ſerv'd in the great*-leav'd *Cherries*, ſuch as the *Black-Heart*, the *White-Heart*, &c. this *Dew* to fall upon them at the Top, juſt at the Beginning of *Midſummer*-Shoot, which has ſo ſtopp'd the Shoot, that it has ſhot forth in other Places below; and that on the Top of theſe Shoots there may be many ſmall Flies feeding on this *Dew*; and that it is plainly to be taſted and ſeen on the Leaves of *Oak* and *Maple*.

Mr. *Mortimer* ſays, Tho' *Blites* and *Mildews* have been generally taken for the ſame Thing, yet *Mildew* is quite another Thing than *Blaſting*; *Mildews*, being (as ſome ſay) caus'd from the Condenſation of a fat and moiſt Exhalation in a hot and dry Summer, from the Bloſſoms and Vegetables of the Earth, and alſo from the Earth itſelf, which is condens'd into a fat, glutinous Matter, by the Coolneſs and Serenity of the Air, and falls down on the Earth again; part of which reſts upon the Leaves of the *Oak* and other Trees that have ſmooth Leaves; and for that Reaſon do not eaſily admit the Moiſture into them, as the *Elm* and other rougher Leaves do.

Other Parts of *Mildew* reſts upon the Ears and Stalks of *Wheat*, beſpotting the Stalks with a different Colour from the natural, being of a glutinous Subſtance by the Heat of the Sun, and ſo binds up the cloſe, tender Ears of *Wheat*, that it prevents the Growth, and occaſions it to be very light in Harveſt. *Mildews*, he ſays, are the principal Food of *Bees*, being ſweet, and eaſily convertible into *Honey*.

Dr. *Agricola* ſays, That *Mildew* often reigns among Trees, and is like an Epidemical Diſeaſe; that it does them moſt Hurt in the *Spring*, at which Time the Earth begins to open, and the incloſ'd Vapours to exhale.

Mildew, he ſays, is only a corroſive and nipping *Dew*, which proceeds from the Vapours which are exhal'd by the Earth, which being drawn up, and falling down again on the tender opening *Buds*, infects them by its Acrimony, and hinders the Circulation of the nutritive Sap in the proper Veſſels; whereupon the Leaves begin to fade, and the Bloſſoms and Fruit receive a very great Prejudice.

36. MINERALS.

MINERALS are hard Bodies, dug out of the Earth or Mines, being partly of a metalline and partly of a ſtony Subſtance, and ſometimes with ſome Salt and Sulphur intermix'd with the other.

37. MINT.

MINT is of four divers Sorts, but the *Garden-Mint* is the beſt, and may be multiplied by *Runners*, which are as ſo many Arms that ſpring out of its Tuft, but chiefly by *Slips* ſet in the Spring of the Year: It ought always to be remov'd once in three Years, and planted in good Earth at about a Foot Diſtance. When it is about a Foot high, it ſhould be cut in a dry Day, *and hung up in* Bunches in the Shade to dry. Some large Roots of it may be ſet in the Corners of Hot-beds about *November*, in order to have young Shoots for Winter Sallets.

38. MISLETOE.

MR. *Bradley*, ſpeaking of the Fruits of Trees being liable to be adulterated with the *Farina* of others, ſays, He knows of no Plant but the *Miſletoe* that is out of that Danger; and tho' the Parts of its Flowers are indeed as apt to Generation as thoſe of other Plants, yet he has never ſeen any Variety of this Plant, or knows any related near enough to it to engender with it. And that its *Leaves*, *Flowers*, *Fruit*, and Manner of *Growth* are all alike, find it upon what Tree ſoever, as *Lime*, *Oak*, *Willow*, &c.

He obſerves theſe Particularities belonging to it, That it is neither to be propagated in Earth or Water, but only upon other Trees or Plants.

That tho' it was by the Ancients accounted a Super-Plant, and peculiar to the *Oak*, and that tho' it did ſeemingly produce Seed, yet they were of Opinion that the Seed could not poſſibly be made to vegetate, becauſe (as he ſuppoſes) they try'd it in the Earth without Succeſs: Yet he undertakes to refute their Opinion; and affirms, That it may be propagated by Seed upon any Tree whatſoever; which may be done as follows:

About *Chriſtmaſs*, when the Berries are full ripe, you may eaſily make them ſtick upon the ſmooth Bark of whatſoever Tree you have a Mind to propagate them upon, whether *Apple*, *Aſh*, *Currant*, *Elm*, *Gooſeberry*, *Pear*, *Plumb*, *Oak*, *Roſe*, &c. And that the viſcous Juice, which encompaſſes each Seed, will make it adhere faſt to the Place you place it upon; and provided the Birds do not devour the Seeds, you might without any further Trouble expect young Plants the next Year.

He aſſerts, he has ſeen Twenty Plants of *Miſletoe* in one Garden, growing upon as many different ſorts of Trees and Shrubs, which were propagated after the 'forementioned Manner.

And he is of Opinion, It would be very uſeful for the Correcting the too great Vigour of ſome Fruit-Trees, and bring them to bear, by taking from them the ſuperabundant Juices, which are always deſtructive to Prolificity, either in Plants or Animals.

He adds, That *Miſletoe* is not only an Ever-green, but even grows, and ripens its Fruit a long Time after the Tree it grows upon ſheds its Leaves.

39. MOLY, *or* WILD GARLICK.

OF this Plant there are ſeveral Kinds, which Mr. *Mortimer* enumerates as followeth:

Various Kinds.] The *Moly of Homer*, the *Moly of Dioſcorides*, the *Hungarian Moly*, the *Indian*
oly, *the Serpents Moly*, the Spa-
Purple Moly, the Spaniſh
r-capp'd Moly, the *ſweet Moly of Montpelier*, the *Yellow Moly*, &c.

Monſ. *Liger* diſtinguiſhes them into Two ſorts; the *Moly* with broad Leaves, and that with narrow Leaves: The *Moly* with broad Leaves comprehends the *African Moly*, whoſe Flower is *red*, and falls downwards like the Tops of *Fennel*: The *Moly* whoſe Leaves are *white*, and its Flowers like a *Lily*: The *Moly* with *red* Flowers: The *Indian Moly*, and the *Spaniſh Moly* with broad Leaves. And he thus deſcribes the Plants.

Deſcription.] This Plant from its Root ſhoots forth five Leaves, green, thick, and pointed at the End, about a Foot and half long, and three Inches broad: Beſides theſe Leaves it ſhoots forth a Stem three or four Foot high, which at the Top bears Flowers either *red*, *white*, *&c.* whoſe Leaves fall down like the Tops of *Fennel*. In the Middle of theſe Flowers grows a Style, which in Time becomes a longiſh Fruit, divided into three Cells, in which are contain'd a *black* Onion like Seed.

Propagation.] Mr. *Mortimer* ſays, they are hardy, and will thrive in any Soil.

Monſ. *Liger* ſays, the moſt expeditious Way of Multiplying them, is by their Bulbs, which are apt to ſhoot forth deep Roots, and therefore they muſt be torn off every two Years, that you may have Suckers to multiply them by.

Culture.] Mr. *Mortimer* ſays, their Roots are tender, and muſt be carefully defended from the

Froſts. They loſe their Fibres, and muſt be taken up when the Stalks are dry, and the biggeſt Roots muſt be preſerved to ſet again, all the ſmall *Offſets* being thrown away, with which many of them are apt to be peſtered, eſpecially if they ſtand long unremov'd. The *Moly* of *Homer* and all the reſt flower in *May* and continue till *July*, except the *Moly* of *Montpelier*, which flowers late in *September*; they make an agreeable Figure in a Flower Garden, they may be ſet either in the naked Ground or in Pots.

40. MONOPETALOUS.

MONOPETALOUS Flowers are ſuch, which altho' they are ſeemingly cut into four or five ſmall *Petala* or Leaves, are yet all of one Piece, and which falling off altogether have their Flower in one Piece.

41. MONOPYRENEOUS.

MONOPYRENEOUS Fruit is ſuch Fruit of a Plant, as contains in it only one *Kernel* or *Seed*.

42. MONTIGENOUS,

MONTIGENOUS ſignifies produced on the Mountains.

43. MOSSES.

MOSSES, ſays Mr. *Bradley*, are *no leſs perfect Plants than Oaks or other of the* moſt remarkable Trees; they have *Roots*, *Branches*, *Leaves*, *Flowers and Fruit*, as well as the moſt notable Plant. It is, he ſays, likewiſe obſervable, that ſeveral Kinds of *Moſſes* grow in *England* only in the Winter, and begin to decay at the leaſt Approach of warm Weather, and at the Beginning of our Summer Decay, and are entirely at a Stand, which is a plain Demonſtration, that there are Plants that grow in certain Degrees of Cold (as it is call'd) as well as Heat. He adds, he has heard, that the colder Climates abound with *Moſſes*, and that the more towards the *North*, they grow the larger and in greater Quantities, and that in the *North* Parts of *Muſcovy* they ſerve for Food for the *Rain-Deer*. And that he once ſaw a Plant brought from about *Norway*, which grew in ſixty five or ſixty ſix Degrees, which budded out in *December*, and continued growing till the *March* following.

Mr. *Mortimer* ſays, *Moſs* growing on Trees is of ſeveral Sorts, cold and moiſt Ground produces a long ſhaggy *Moſs*; moiſt and dry Ground a ſhort thick *Moſs*.

He reckons *Moſs* among the Infirmities or Diſeaſes of Trees, and ſays, that it ought to be rubb'd and ſcrap'd off with ſome fit Inſtrument, that will not hurt the Bark of the Tree, or with a Piece of Hair-Cloth after a ſoaking Rain.

But he ſays, the moſt certain way to cure it, is to take away the Cauſe, which is done by draining the Land well from all ſuperfluous Water, and to prevent it in the firſt planting of Trees by not ſetting them too deep.

But if the *Moſs* grows in great Quantity and long, ſo as to ſmother the Branches of Trees, he adviſes to prune off the greateſt Part of the Branches, and to clear the reſt of the *Moſs* or to take off all the Head, and the Tree will ſhoot again, and become as it were young.

If this Moſſineſs on Trees proceeds from the Dryneſs of the Ground, he adviſes to open it and lay Mud on it, which will both cool it and alſo prevent the falling of the Fruit, and its being Worm eaten, which is incident to dry Grounds.

Doctor *Agricola* ſays, that for his Satisfaction, he carefully examined all Sorts of *Moſs*, as well that of *Oak* as what grows upon the *Sloe-Tree*; and alſo ſome of the fungous Tribe, and found upon a ſmall Branch of a *Sloe-Tree*, which was half rotten, a young Plant of *Moſs* ſprouting forth in tender Shoots, like fine Hairs curling one into another, from hence he concluded, that ſince the *Sloe-Tree*, which was half rotten and covered with *Moſs*, was yet upon its natural Root, this *Moſs* muſt neceſſarily have been produced from the putrid Sap, and *ſickly Spirits* of the Tree.

He therefore reckons *Moſs* among the Diſtempers of *Trees*, for that we very rarely ſee *Moſs* on a young Tree, that is freſh and ſound; ſuch a Tree is already infected with a corrupt nutritive Juice, and will ſoon begin to decay; for the *Moſs* has its Roots, and muſt neceſſarily draw its Nouriſhment from a tainted Juice; therefore Care ought to be taken of ſuch Trees leſt they receive Damage by the *Moſs*.

Monſ. *Gentil* ſays, *Moſs* is apt to ſpoil the Rind of *Trees*, the Remedy is to take it off from Time to Time in *Autumn*, either with a wooden Knife or with Bruſhes made for that Purpoſe. And the proper Time to do this is in rainy Weather.

44. MOTHERWORT *or* MATRICARIA.

THIS Plant takes its Name *Matricaria* from *Matrix* the Womb, and *Motherwort* in Engliſh, being of ſovereign Uſe, againſt Diſtempers incident to the Womb.

This Plant ſhoots out Stalks about two Foot high, which are divided into ſeveral Branches adorn'd with large green Leaves deeply indented, and jagged at the Edges. At the End of the Stalks grow Flowers, like Sun-beams, the Diſh of which is compos'd of ſeveral Flouriſhes, whoſe Superficies repreſents the Shape of a Crown of half Flouriſhes; ſupported on Embryos, and contained in a *Calix* or Cup, ſcaly and half round, theſe Embryos in Time become oblong *Seeds*.

This Plant is raiſed by *Seeds* or parting of the Roots. It flowers moſt in the Summer Months, and tho' the Stalks and Leaves periſh in Winter, the Root endures.

45. MOULD.

MOULDS may be known by the Sight, Smell, and Touch,

Firſt, By the Sight, Moulds of a lively *Cheſnut* Colour are the beſt, of which Colour the beſt *Loams* are, and alſo the beſt natural Earths; next to that dark *Greys* and *Ruſſet*: The light and dark *Aſh* Colour are the very worſt, as being ſuch as are found on common heathy Ground: The clear *tawny* is by no Means commendable; but the *yellowiſh Red* is the worſt of all; they are commonly found in the wild and waſte Parts of the Country, and commonly produce nothing but *Gorz*, *Furz*, or *Fern*, as their Bottoms are more or leſs of a *light* and *ſandy*, or of a ſpewy *Gravel* or *clayey* Nature.

Secondly, By the *Smell*; all good and wholeſome Lands will after Rain, or breaking up by the Spade emit a good Smell.

Thirdly, By the *Touch*; by this Means we may diſcover whether it conſiſts of Subſtances intirely arenaceous or clammy, or according as it is expreſſed by Mr. *Evelyn*, whether it be *tenera*, *fatty*, *deterſive*, or *ſlippery*, or more harſh, gritty, porous or friable: That being always beſt that is between the two Extremes, and does not contain the two different Qualities of ſoft or hard mix'd, of moiſt and dry, of churliſh and mild; that is neither too unctuous nor too clean, but ſuch as will eaſily diſſolve, of a juſt Conſiſtence between Sand and Clay, and ſuch as will not ſtick to the Spade or Fingers upon every Flaſh of Rain.

Mr. *Evelyn* ſays, that is the beſt Earth that is of a *blackiſh grey*; but Mr. *Switzer* ſays, that which is of a lively *Cheſnut* or *Hazle* Colour, which cuts like Butter, and does not ſtick obſtinately, but is ſhort, tolerably light, breaking into ſmall Clods, is ſweet, will be tempered, without cruſting or chapping in dry Weather, or turning to Mortar in Wet.

A *Loam* or *Brick* Mould he appproves, as requiring little Help or Improvement but the Spade, and is in eſteem both by the Gardener and Floriſt. See *Earths*.

46. MUCILAGE.

MUCILAGE is a viſcous, clammy Subſtance about *Seeds*, &c,

47. MUCILAGINOUS.

MUCILAGINOUS is endowed with a clammy, viſcous Matter.

48. MULBERRY-TREE.

WE have two Sorts of *Mulberries* the *black* and the *white*, the *black* is the moſt common in *England*, a ſlow grower, and chiefly famous for its Fruit, it is a catking bearing Tree, producing male and female Bloſſoms at the ſame Time; and ſome have obſerved that it never Buds till the Weather be ſettled warm.

The white *Mulberry-Tree* is a quick grower, but it has a ſmall inſipid Fruit, but having a ſmoother Leaf, it is much to be preferred for its uſefulneſs for Silk-Worms, in that it buds near a Fortnight ſooner than the *black*, and the Leaves are finer and tenderer for them when young. Mr. *Mortimer* ſays, the *white Mulberry* is much the finer, being ſo called, becauſe the Fruit is of a paler Colour, more luſcious and leſſer than the *black*, the Rind likewiſe is whiter and the Leaves of a mealy clear green Colour. It is a beautiful Tree for Walks and Avenues, and affords a fine Ornament to the Silk Country, where they plant them in Walks or regular Groves about their Fields.

Mr. *Mortimer* adviſes to inoculate the *black Mulberry*, or to graft it by approach upon the Stocks of the *white Mulberry* which grows ſtrait, and will make a handſome Tree very quickly. And his Reaſon is, *becauſe he hardly* ever ſaw a *black Mulberry-Tree*; with a ſtrait Stem of any good Height; nor does he think the common Way of raiſing them would ever produce any better than he has ſeen. But is well aſſured, that this Way would do much better than raiſing, either by *Seed*, as ſome have practiſed, or by *Layers*, as is the moſt common Way.

As for the *white Mulberry*, Mr. *Evelyn* ſays, in thoſe Countries where they cultivate them for Silk-Worms, they ſeparate the *Seeds* from the Berries, being gathered thorough ripe, and bruiſe them in their Hands, and afterwards waſh them in ſeveral Waters, by doing which the Pulp ſwims on the Top, and the *Seed*, which is ſmall; ſinks to the Bottom; then they take off the Pulp, take out the *Seeds*, and lay them on a Linen-Cloth, and dry them, which will be done ſufficiently in an Hour's Time.

But Mr. *Evelyn* himſelf prefers the ſowing of the ripe *Mulberries* themſelves in rich, black Garden Mould, the *Mulberries* being firſt bruiſed or ſquaſhed; they are to be watered immediately upon their firſt being ſown, but afterwards but very rarely, till they begin to appear; that after they are ſown they muſt be covered thin with Straw to defend them from the Birds and the Heat.

The Seaſon of ſowing them is with ſome either *April* or *May*, but ſome do it in *July*, *Auguſt* or *September*; keep them moderately ſheltered and clean weeded for two Years, and either in *October* or *February* draw them up gently, dip the Roots in Water, and ſo tranſplant them into a warm Place of a Nurſery, having cut them within three Inches of the Ground, and given them three Dreſſings or half Diggings in *April*, *June* and *Auguſt* to kill the Weeds.

In the ſecond Year they purge them of ſuperfluous Branches, but ſpare the principal Stem, and if the Froſt injures any Part of that, they cut it off.

Tho' this way of raiſing them may do well in hot Countries, Mr. *Mortimer* rather approves of the raiſing them of *Layers* from another Tree, or *Suckers* from the Root, in *February*, and to ſet them not leaving above two Buds out of the Ground, which if they be well watered and weeded will be well rooted in two Years.

Dr. *Beal* ſays, that they may be grafted on the *black Mulberry* in the Spring, or inoculated in *July*. The *Cyons* ſhould be taken off an old Tree, that bears broad even Leaves, which is chiefly to be conſidered in the *white Mulberry*, they being the moſt uſeful Part of the Tree.

The *white Mulberry* being a more tender Tree than the *black*; the beſt Time for Tranſplanting it, is *February*, when it ſhould both be planted while it is young and in a rich Soil, and be kept well watered. When you remove them, the Branches muſt be trimmed up ſo as to leave but a ſmall Head on them, but the Head muſt not be cut off.

They love a light, dry, rich Mould, which will be ſo much the better, if it be well manured with Aſhes or Horſe-Dung, and they will thrive the better for being expoſed to the Sun and the Air; the beſt Time for Tranſplanting is in *September* or *October*, when they are about five Years Growth, they ought to be carefully taken up, and as few of the Roots ſhould be cut as can be, and if there be any Branches dry or hurt with the Froſt, they are to be cut off, and for the firſt Year or two after they are tranſplanted, you will do well to thin the Branches a little, where they grow too thick, and it will greatly improve them to dig and ſtir the Earth about their Roots.

Mr. *Bradley* ſays, the *white Mulberry* may be encreaſed either by *Seeds* ſown in *March*, which will ſprout in about three Weeks after ſowing, and be near ſix Inches high the firſt Summer, or laying the youngeſt Shoots into the Earth at that Time, which will be fit to take off the Spring after they are laid into the Earth.

He informs us, That he has heard of a Man near *Utrecht*, who has lately begun the Trade of Silk, and in the Year 1718, as he has heard from good Hands, made ten or or twelve Bales of Silk from his own Worms He is of opinion, if Silk-Worms were more regarded in *England*, they would thrive as well as they do in *Italy*, where they are ſubject to ſo many Hazards, and eſpecially to be ſpoiled by the violent Thunder, which is very frequent in thoſe Parts; where no Man is certain of a good Silk Harveſt till the Worms have actually ſpun their Silk; for if Thunder happens to come juſt when the Worms are going to ſpin, they will immediately drop and infallibly periſh. He therefore thinks it worth the while to make the Experiment, whether firing of Guns near ſuch Trees, as are infeſted with Caterpillars, would not deſtroy them likewiſe.

Mr. *Mortimer* ſays, the Leaves beſt for Silk-Worms, are thoſe of Trees about ſeven or eight Years Growth, for the Leaves of young Trees are apt to burſt the Worms, as alſo do thoſe planted in a wateriſh Soil, and thoſe that are ſick and yellow.

He ſays, the Leaves ſhould be clipped off and let drop on a Sheet or Blanket, which is better than gathering them with the Hand, which is better than to ſlip them off, becauſe it both bruiſes the Leaves and galls the Branches.

If there be a Neceſſity to gather the Leaves in wet Weather; he adviſes to put them into a pair of Sheets well dry'd by the Fire, and to ſhake them up and down till the Moiſture be drunk up by the Linen. The Top Leaves and the oldeſt ſhould be gathered laſt, being *the moſt proper* to feed the Worms towards their ſpinning Time.

Mr. *Bradley* ſays, the *black Mulberry* ought to be planted in the Shade to prevent its Fruit from falling, which it is very apt to do, if it be full expoſed to the Sun. It has been an Obſervation that ſome have made, that the Berries of theſe Trees grow extraordinary large if they are planted and treated in the Manner of *Eſpaliers* againſt a Wall ſituate to the *North*.

The *white Mulberry*, tho' it bears but a ſmall Fruit, and ſcarcely worth the Care of propagating, on that Account, yet is very advantageous on Account of its Leaves, for the feeding of Silk-Worms.

He ſays, he has been informed by a Friend, That both the *black* and *white Mulberry* may be inoculated upon the *Elm* with good Succeſs, and that the Buds will take upon the *Lime* or *Linden-Tree*, and bear better than upon the *Elm*.

He remarks, That moſt of the large *Mulberry-Trees*, that are now growing in or about *London* and *Weſtminſter*, were planted in the Reign of King *James* the Firſt, on Account of ſetting up a Silk-Manufacture in *England*, that Prince having written a Letter to the Lords Lieutenants of the ſeveral Shires of *England*, for the increaſing of *Mulberry-Trees*, and the breeding of Silk-Worms, which was then thought would inrich the Nation. If this Ma-

manufacture

nufacture were now heartily ſet about it would be very beneficial to the Publick, and employ a great many Hands which now want Employment.

49. MULLEINS.

THERE are many Kinds of *Mulleins* bearing Flowers of different Colours, ſome *white*, others *red*, *brown*, *black*, *green*, *purple*, and *yellow*, they are a large Plant, few of them bloſſoming lower than four Foot, and ſome of them ſix Foot high; and tho' they are moſt of them wild Plants, yet the beautiful Spikes of Flowers, they produce, render them worthy to be Companions with others in a Flower-Garden: They love a ſandy Soil and a ſhady Situation, are to be multiplyed by *Seeds* ſown in *Autumn*, or *March*, they bloſſom the ſecond Year after ſowing.

50. MULTISILIQUOUS.

MULTISILIQUOUS Plants are ſuch as have after each Flower, many diſtinct, long, ſlender, and many times crooked Caſes or *ſiliquæ*, in which their *Seed* is contained; and which, when they ripen, open of themſelves, and let the *Seeds* drop: Of this Kind is the *Bears-foot*, *Columbines*, common *Houſe-leek*, *Marſh*, *Marygold*, *Navel-wort*, *Orpine*, &c.

51. MUMMY, *or* Graffing-Wax.

DR. *Agricola* directs the Preparing of it as follows: Take one Pound of common black *Pitch*, and a Quarter of a Pound of common *Turpentine*; put them together in an earthen Pot, and ſet them on Fire in the open Air, having ſomething in your Hand ready to cover and quench it in Time; cover thus the Pot ſeveral Times, and kindle it again, that the nitrous and volatile Parts may evaporate. The Way to know when it is enough, is, by pouring a little of it upon a Pewter-Plate, and if it be enough it will coagulate preſently; then pour this melted *Pitch* into another Pot, and add to it a little common *Wax*; mix them well together, and keep it for Uſe.

The Way of Uſing it.] He directs, That when you would dreſs Roots with this Wax, to melt it, and afterwards to let it cool a little, and then to dip in the two Ends of the Pieces of Root one after another, but not too deep, and afterwards to put them in Water, and to plant them in the Earth, the ſmall End downwards, ſo that the larger End may appear a little Way out of the Earth, and ſo have the Benefit of the Air; then to preſs the Earth very hard down about them, that they may not receive too much Wet, becauſe that would rot them. He tells us, that he beats down the Earth with a wooden Mallet: And thus he treats the Roots of all wild and foreign Trees and Flowers, as well as others.

He alſo gives Directions for making a better kind of Wax for tender Trees; which he calls the *Noble Graffing-Wax*.

The Noble Graffing-Wax.

Take two Pounds of pure *Pitch*, ſuch as is call'd at *Ratiſbon*, *Virgin-Pitch*, and add to it Half a Pound of good *Turpentine*; put them together in an earthen Pot, and ſet them over the Fire, that the volatile Part of the *Turpentine* may evaporate, otherwiſe it would be very prejudicial to *Trees* and *Roots*. Prove it as you did the other, to know when it is enough; and then add to it Half a Pound of *Virgin-Wax*, and Half an Ounce of pounded *Myrrh* and *Aloes*: When theſe are well mixt, make it up into little Rolls, or elſe Plaiſters, that is, dip Linnen Rags in it; or elſe you may keep it in Gallipots.

The Time when this Operation upon Roots is to be perform'd.] Tho' it will ſucceed well at any Seaſon of the Year, yet he accounts the Months of *September*, *October* or *November* the moſt proper Seaſons for it. The only Difference, he ſays, is, what is planted in Spring will ſhoot in *June* or *July*; and what is planted in *Autumn* comes not forth 'till the Month of *April*.

A Mummy for Exotick Plants.

Take Half a Pound of *Gum-copal*, beat it very fine, and ſearce it; take three Pound of *Venice-Turpentine*, and melt it over a ſlow Fire in a ſtrong earthen Pot; when the *Turpentine* is melted and liquidated, put the ſifted *Gum* into it, and keep it continually ſtirring with a little Stick, augmenting the Fire gradually and it will all diſſolve inſenſibly; afterwards let the *Turpentine* evaporate well, and it will thicken; and when it is become of a ſufficient Conſiſtence, you may make it up into little Rolls like Sealing-wax, and keep it for Uſe.

Some Things to be obſerved in making the Mummy.] 1. It is better to make it in the open Air than in a Houſe, for Fear of Danger. 2. You ſhould have ſomething ready in your Hand to extinguiſh the Flame, if the *Turpentine* takes Fire: Tho' he ſays, he has often ſet it on Fire on purpoſe, and has kept ſtirring it about 'till he has almoſt quenched the Flame, and by this Method it was the ſooner brought to a Conſiſtence; but then at the ſame Time it turned it black, but that was no Prejudice to it, and on ſome Occaſions was more uſeful to him, than if it had been clear.

This *Mummy*, he ſays, is an excellent Vulnerary; for it is ſubject to no Corruption, as other gummy Things are; and it hinders any Rottenneſs between the *Stock* and the *Root*, by Means of which the *Callus* is form'd the ſooner, and ſpreads over all the Parts, and the *Stock* becomes intirely connected with the *Root*: It alſo gives Strength and Vigour to the *Root*, and facilitates its Growth.

Vegetable Mummy.

Fill a large Kettle or earthen Pot about a third Part full of common black *Pitch*, and add to it a little fine *Roſin* or ſulphurated *Pitch*, and a little yellow *Wax*; melt theſe together 'till they become liquid; then take them off the Fire, and let them ſtand 'till they have done Smoaking, and when it is cool you may with a Bruſh plaiſter the Inciſions which are made for Inoculation, Graffing, *&c.*

The Garden or Foreſt Mummy.

Take three Pounds of common *Turpentine*, and four Pounds of common *Pitch*; melt the *Turpentine* over the Fire, as is directed concerning the *Noble Mummy*; then the *Pitch* being beaten to a fine Powder, throw it in, and when they are well mix'd together, and the Compoſition is grown pretty thick, take it off, and keep it for Uſe.

This Compoſition may be either made up into little Sticks, like thoſe of Sealing-Wax, to be made Uſe of on little Trees; or it may be kept in Pots, and melted over a ſlow Fire when there is occaſion to uſe it; and dipping a little Bruſh in it, you may plaiſter the Graff.

More as to the Uſe of theſe in Planting and Graffing may be ſeen under various other Articles.

52. *The* MUSCIPULA, *or* CATCH-FLIE.

THIS Plant is call'd *Catch-Flie*, becauſe Flies are often caught in the Gum that proceeds from the Stalk *of it, which is as ſticking as Bird-lime.*

This Plant ſhoots forth Stalks about a Foot and Half high, which are ſmall, round and tough, and ſprout out ſeveral Sprigs: The Leaves are broad at Bottom, ſharp at Top, and when they firſt come out, wind about the Sprigs, which Sprigs, at their Ends, produce ſweet-ſcented *red* Flowers, compos'd of ſeveral Leaves, and are often in the Shape of a Heart; to which are join'd two or three Leaves like a Crown which grow out of a *Calix* or Cup, in the Form of a Pipe, which grows to be a Fruit, opening at the Top; in which are contained little, roundiſh Seeds, which when they are ripe, are *reddiſh*.

It loves the ſame Soil, and requires the ſame Management as the *Lychnis*, of which it is a ſort of Species. See *Lychnis*. It is very ornamental in a *Parterre*.

53. MUSCOSITY.

MUSCOSITY ſignifies *Moſſineſs*.

54. MUSCOUS.

MUSCOUS ſignifies *Moſſy*, or abounding with *Moſs*.

55. MUSHROOMS.

MR. *Bradley* ſays, That by the Obſervations he has made concerning the natural Produce of *Muſhrooms*, it ſeems to him, that they are produc'd by ſome Putrefaction in the Earth, or in thoſe Bodies they are apt to grow upon. That he has obſerv'd in *England* an Hundred Kinds, beſides thoſe very ſmall ones growing in the Mouldineſs of Fruit and Liquors, which are ſo ſmall that they cannot be diſcern'd without the Help of a *Microſcope*; which laſt are ſuch quick Growers, that they arrive at Perfection in leſs than twelve Hours; and by ſhedding their Seeds produce ſeveral Hundreds of the ſame Kind; from whence it comes to paſs, if once it infects them, Mouldineſs ſoon overſpreads thoſe Bodies.

Of all theſe Sorts, he commends the *Morils*, *Truffles* and *Champignions*: The *Morils* and *Truffles* are found but in few Places in *England*; tho', he ſays, he is apt to believe they are as plentiful with us as *Champignions* are, which grow plentifully without Culture. The true *Champignion* he thus deſcribes:

It has its Fleſh very white, firſt appearing like a Button, with a Foot-Stalk growing to it; the Chives within it are of a Fleſh-Colour, and as the Cap of it explains itſelf, thoſe Chives become darker by Degrees, and at length turn black. He ſays, he has ſeen ſome of the Caps when they have been fully explain'd, that have been about ſix Inches over, and of a conſiderable Thickneſs. This Kind is the only Sort among the *Cap-Muſhrooms*, that he recommends for its Goodneſs; and of thoſe only ſuch as are freſh and free from Worms, which are apt to breed in them, and eſpecially in their Stalks, for they are not accounted wholeſome. Theſe commonly grow in rich Paſture-Grounds, after Rain has fallen, about the latter End of *July*, or in *Auguſt* or *September*; yet he thinks it would turn to good Account, to raiſe them in our Gardens: To do which, Monſ. G*entil* directs as follows:

Provide your ſelf with a ſufficient Quantity of Dung of Wheat-Straw, but never of Rye-Straw. This Proviſion ought to be making from *April* 'till *Auguſt*; then lay it in Rows, and tie it together.

In *November*, dig up your Trenches three Foot broad, and Half a Foot deep. Let your Dung be well mixt, that is, the excrementitious Part with the Straw, and throw it into the Trench two Foot up Ridgewiſe; over this, lay Earth two Inches thick, and cover every Bed with unrotted Litter the *April* following, that the exceſſive Heat may not penetrate into the Beds. When the Dung begins to dry, water it every three Weeks, if it does not rain.

Water, in which the Peels, Stalks and Refuſe of *Muſhrooms* have been newly boil'd, pour'd on hot, is beſt.

Morils, Mr. *Bradley* ſays, are to be found in the Woods chiefly in *April*.

Truffles, he ſays, he does not know of any that have been propagated by Art, but are to be dug out of the Ground, for they never appear above Ground; and they are alſo to be found in *April*. He ſays, that he can learn but one Way that they that gather *Morils* in Foreign Countries have to find them; that is, They lead a Hog in a String through the Woods, and ſuffer him to root up the Earth as he goes along, and the Hog being a great Devourer of them, will diſcover them by the Smell, and turn them out of the Ground.

It is common to ſee *Muſhrooms* in the *Autumn* Seaſon appear naturally upon Hot-beds that have been ill made; but theſe Beds are unconſtant, giving only a few for a ſhort Space: But if theſe Beds were rightly diſpos'd and ordered according to Art, they might be had at Pleaſure in any Seaſon.

He ſays, Whereas he has taken Notice of the Way of making *Muſhroom-Beds*, about *Paris* in *France*, where there are always to be found ſeveral Acres of theſe Beds; the Method is to make each Bed at twice, and only pure Stone-Horſe Dung is to be uſed; each Parcel muſt be toſs'd up in a dry Place fifteen Days before it is uſed, and muſt (during that Time) be kept without Wet; which, if it be not taken Care that it is ſo, no good Succeſs can be hop'd for, for this Reaſon: For by this Method of making the Bed at twice, the Bed at the ſame Time conſiſts of two different Heats: The firſt Part begins to decline in its Heat by that Time it has been made fifteen Days; then freſh Dung being laid upon it, it increaſes its Heat as the firſt Part declines, which will afford much ſuch another changeable Variety *as is to be found in that* Seaſon when *Muſhrooms* appear of their own accord: And it is ſuch an Irregularity of Seaſon which enlivens the Seed or Spawn of the *Muſhroom*, which is already in the Ground.

When this Bed is quite made, it muſt not be covered above an Inch thick with fine Earth; for if it be any thicker, the *Muſhrooms*, when they come up, will be both ſmall and watery, and eſpecially if the Earth be very ſtiff; but if the Earth be very light and open, it will not do much Harm, if it be laid a little more than an Inch thick,

The *French* Gardeners, when they make freſh *Muſhroom-Beds* every Month, they put into the Earth Pieces of the *Muſhroom-Earth*, about the Bigneſs of Walnuts, juſt in the Line where the two Makings of the two Beds join; for it is in ſuch a Place where the *Muſhroom-Earth*, *i. e.* that which is full of the little white Strings and Bulbs of the *Muſhrooms* meet, with the declining and decreaſing Heat, that is ſo neceſſary for making of them ſpread and grow: And beſides this, the Horſe-Litter, which covers the Bed, does alſo contribute to the retaining the Vapour ariſing from the Bed; and does in ſome meaſure imitate what we call a Fog. And moreover, it only admits a glimmering Sun to reach the young Buttons of the *Muſhrooms*; for too much Sun will dry the young *Muſhrooms* and ſtop their Growth, whereas too little will cauſe them to rot; therefore it is neceſſary that the Litter which the

Beds be covered with, ſhould be clear from all Dung, and be laid very light and free upon the Bed.

Theſe Beds are not to be made flat at the Top, for a *Muſhroom* does not like that Poſition, for it holds Water too much, and that rots them ; but they delight in the Side of a Slope.

After the Bed has been planted two or three Days with *Muſhroom-Earth*, it muſt be examined every Day ; becauſe if any *Muſhrooms* that come up, are ſuffered to rot upon the Ground, they breed Maggots or Worms, which will deſtroy all the young Spawn or Buttons in the Bed ; and the Litter being kept light and open upon the Beds will promote the Growth of the *Muſhrooms*.

If the Courſe of the Fibres of the *Muſhrooms* be examined, there will be found Knots or Knobs joining to the Strings of the Roots, each Knot being about the Bigneſs of the Head of a Pin, running juſt under the Surface, after the Manner of the Roots of Potatoes ; and if the Bed has any Heat, theſe Knots will in a few Days Time come to be *Muſhrooms* fit to gather. And none of them muſt be let remain upon the Bed after they begin to ſpread ; for if they are, they breed Worms, which will deſtroy all the young ones.

In like Manner, when you gather them, you muſt take Care that all the broken Parts of the *Muſhrooms* be taken away, and in particular every Stalk that is broken, for the Worms attack them the firſt. When they are *either gathered or* pulled out of the Ground, if there be any ſmall Spawn about the Roots, it muſt be ſeparated from the Root, and planted immediately in that Part of the Bed where there are the feweſt *Muſhrooms*. This Spawn muſt be us'd very gently, ſo that it be not bruis'd, and it will in a few Days, according as the Heat of the Bed is, grow and produce *Muſhrooms*.

When in *Autumn* any of the *Muſhroom-Earth* is planted on old, decay'd Beds, it will be about ten or fifteen Days before they appear : And as ſoon as the Roots begin to ſpread and be full of Knots, then ſome Pieces of that Earth may be broken off, and planted at a Foot Diſtance ; and by this Means the whole Bed will in a little Time be covered with them.

Mr. *Bradley* ſays, By the foregoing Method he has had a whole Bed full in fifteen Days Time, tho' the Bed has been quite without Heat ; but then it was at a Seaſon when they have come up naturally. But no good Succeſs can be expected in planting them out of Seaſon, without ſuch a Hot-bed as he has directed.

From what has been ſaid it does appear, That *Muſhrooms* do increaſe by their Roots, and may be tranſplanted as well as another Plant : But whether it has Seed or not, it is yet a Queſtion. Beds after this manner have been made by the ingenious Mr. *Fairchild*, and Mr. *Whitfield*, at *Hoxton*, which have had very good Succeſs.

He tells us likewiſe, That *Auguſt* and *September* are proper Times to examine the Fields for *Muſhrooms*, to procure that ſort of Earth that is found about their Roots, and is full of fine white Threads, and has ſometimes little white Knots appearing here and there in it: For in this Earth is contain'd what is neceſſary for the producing of *Muſhrooms*. This muſt be kept dry 'till it is made Uſe of in the *Muſhroom-Beds*. The *French* Gardeners every Year ſave great Quantities of this ſort of Earth, and lay it up in a dry Room in large Clods, 'till they make Uſe of it in their Beds: And altho' they ſometimes keep it for a Year, yet when it comes to be buried Half an Inch in the Beds, being moderately warm, and has been watered for a few Days, it puts forth *Muſhrooms*.

He ſays, His Manner of keeping this *Muſhroom-Earth*, is, to put it in a Paper-Bag, and to keep it in a Room where there is a Fire; for if any Wet or Moiſture comes to it, it rots it.

When *Muſhroom-Beds* are made according to Art, every cubical Bit of Half an Inch Bigneſs of ſuch Earth will furniſh a Quantity of *Muſhrooms* which will ſpread their Roots near two Foot.

56. MUSTARD.

IS of a hot and dry Nature, is rais'd of Seed, and will grow in any ſort of dry Soil.

57. MYRTLES.

MONS. *Liger* deſcribes the *Myrtle* as follows: It is a Shrub, that from its Root ſhoots forth little Branches, garniſh'd with ſmall, green, ſoft, ſhining and pointed Leaves, among which grow Flowers call'd *Pentapelous*, or conſiſting of five Leaves, white, odoriferous, and in the Form of a *Roſe*. Theſe are ſupported by an indented Cup, which grows to be a *Berry* as big as an *Olive*, with a Crown on the Top, divided into ſeveral Cells full of Seeds, ſhap'd like little Kidneys.

Mr. *Mortimer* diſtinguiſhes them into the *Broad-leav'd Myrtle*, and the *Narrow-leav'd Myrtle*, which are both very odoriferous Shrubs; but he eſteems that which affords Plenty of double *white* Bloſſoms in *Autumn*, as the beſt: And alſo a ſort of *Myrtle* with a large Leaf, call'd the *Spaniſh Myrtle*, which will endure all Weathers without Shelter: And another ſort of *Myrtle* that comes from *Carolina* and *Virginia*, which is the hardeſt of them all; the *Berries* of which being boil'd, yield a Subſtance of a green Colour, ſweet or pinguid, which they there ſcum off, and make Candles with, which do not only give a clear Light, but a very agreeable Scent. Theſe will all endure hard Winters with a very ſlender Defence.

Mr. *Bradley* diſtinguiſhes *Myrtles* as follows; the *Large-leav'd Myrtles*, which are, the Nutmeg

Myrtle, the *Nutmeg Myrtle* with variegated Leaves, and that with the double Bloſſom, the *Orange-leav'd Myrtle*, the *Portugal Myrtle*, and the *Spaniſh broad-leav'd Myrtle.*

The *Smaller-leav'd Myrtles*, he diſtinguiſhes into the *Birds-neſt Myrtle*, the *Box-leav'd Myrtle*, the *Roſemary-leav'd Myrtle*, the *Silver-leav'd Myrtle*, the *Thyme-leav'd Myrtle*, and the *Upright Myrtle.*

All theſe, he ſays, are with Eaſe propagated by *Cuttings*, except the *Orange-leav'd Myrtle*, and that with the double Bloſſom, which are much better increas'd from *Layers.*

The beſt Time for Laying *Myrtles*, he ſays, is in *May*, (but Monſ. *Liger* ſays in *March*,) which Layers ſhould be only the youngeſt Shoots; (Monſ. *Liger* ſays, the ſtraiteſt Branches, and thoſe whoſe Rind is ſmootheſt) which, after the Earth has been well ſtirr'd, muſt be bent into the Earth, and often watered, and they will ſtrike Root, and be fit to take off from the Mother Plant the Spring following: But Monſ. *Liger* ſays, the *September* following.

Mr. *Bradley* ſays, If you lay down Shoots of a Year old, they will never take Root, with all the Art that can be us'd.

As for multiplying them by *Cuttings*, he adviſes alſo, That they be young and tender, taken from the *Myrtles* in *July*: That the Leaves muſt be ſtripp'd off two Inches from each Cutting, and ſet in Pots of fine light Earth, two Inches deep, and an Inch one from another, and frequently watered 'till they have taken Root, which will be about the latter End of *Auguſt.* Thus they ought to remain 'till the ſecond *March* before they are tranſplanted into ſingle Pots.

Monſ. *Liger* ſays, That in Order to multiply them by *Slips* cut from the Roots, you muſt lay open the Root of the *Myrtle* from whence you deſign to take a Branch; cut it off as cloſe as you can, that there may be the more little Roots about it. That this is to be done either Spring or Fall: That the Pots, they are planted in, ſhould be two Thirds Kitchin-Garden Soil well ſifted, and one Third Hot-bed Mould.

Mr. *Mortimer* ſays, *Myrtles* produc'd from Layers are the moſt hardy; and thoſe from Seeds moſt tender: But neither He, nor Mr. *Bradley*, nor Monſ. *Liger* gives Directions for multiplying them by Seed.

He ſays, That as to the *Carolina* or *Virginian Myrtle*, it thrives beſt near the Sea, and is rais'd either of *Seeds* or *Layers.* He adviſes in Planting them, That they be not too cloſe together, nor in too moiſt a Place; for that theſe will cauſe them to grow mouldy. That they ſhould be tranſplanted in the Spring of the Year, that they may have Time to get Root in Summer, that the Tree may be ſupply'd with Sap ſufficient to nouriſh it in Winter.

All agree, That they ſhould be well watered. Mr. *Bradley* ſays, When they have once got large Roots, they delight in Water, and ſhould be frequently refreſh'd with it. Monſ. *Liger* ſays, They muſt be frequently watered in the Summer, becauſe the Humidities rectified by the Heat of the Sun, help *Layers* to take Root the ſooner. And Mr. *Mortimer* ſays, *Myrtles* muſt be well watered Summer and Winter, or elſe they will not take Root well.

Mr. *Bradley* ſays, The *Myrtle* delights ſo much in Moiſture, that he has known a Pot of it ſet in a ſhallow Baſon of Water, on the Inſide of a Window, expos'd to the *South*, that has ſhot above four Times as much in one Summer, as any that have ſtood Abroad; and has continued growing at that great Rate for ſeveral Years, without renewing the Earth in the Pot, by only ſupplying the Baſon with freſh Water as it wanted; but the Shoots of this Plant were very tender.

Monſ. *Liger* adviſes to plant them in a Place where the Sun may come at them, and to water them often: And ſays, you may know when they want it by the Fading of the Leaves.

Mr. *Bradley* ſays, in diſpoſing of *Myrtles*, or any other Plants in the Shade, you muſt do it ſo, that no other Trees drop upon them, nor muſt they be confin'd in too cloſe a Place, but have a free Air both round about them and above them, or elſe the Shoots they make will be very ſlender and weak.

Monſ. *Liger* ſays, *Myrtles* naturally require *the Uſe of the Shear, and are to be clipt by* Art; and if by any Accident any of the Branches happen to wither, they are to be cut off to the Quick.

Mr. *Bradley* directs, That about the middle of *April*, ſuch old Trees as have been neglected, and have thin Heads, ſhould be prun'd about the Roots, and have freſh Earth put to them; and that the Branches of their Heads ſhould be cut within three or four Inches of the Stem, and ſhould be prun'd about the Roots; and that by this Ordering, they will prepare to ſhoot by that Time they come Abroad; and if they have Water and Shade enough, will make handſome Plants that Summer.

Mr. *Bradley* informs us, That Mr. *Whitmil* ſhew'd him ſome *Myrtles* that were inarch'd one upon another, and had taken very well: Among theſe, there were the *Strip'd Myrtle* upon the *Plain*; the *Nutmeg Myrtle* upon the *Upright*; the *Large-leav'd* Kinds upon the *Small*; and the *Double-bloſſom'd* upon ſeveral Sorts: Which brought to his Mind ſome Thoughts he once had of making a *Pyramid* of *Myrtles*, the Baſe of which ſhould be garniſh'd with the *Spaniſh Broad-leav'd Myrtle*, to be follow'd with the *Nutmeg*; and next to that the *Silver-edg'd Myrtle*, and upon that the *Upright* Sort, to be ſucceeded by the *Roſemary* and *Thyme-leav'd* Kinds, upon which there might be a Ball of the *Double-bloſſom'd Myrtle*, which would make a fine Appearance.

At Sir *Nicholas Carew*'s, at *Bedington*, is a *Myrtle* of the *Spaniſh broad-leav'd* Kind, which is above eighteen Foot high, and ſpreads about 45 Foot. Mr. *Bradley* ſays, if to this are join'd thoſe *Myrtles* that he has ſeen growing in *Devonſhire*, in the natural Ground, he cannot ſee any Occaſion for any great Uſe of Fire for theſe Sort of Plants, as is common in Green-houſes: But Plants that are in Pots are much more liable to ſuffer by the Froſt, than if they were in the naked Ground; and the more woody the Plants are, the more hardy they are.

N A

1. NAKED-SEEDS.

NAKED-SEEDS, are ſuch *Seeds* of Plants as are not incloſed in any Pod or Caſe.

2. NARCISSUS's.

Various Sorts.] *NARCISUS'S* are of different Sorts and ſeveral Colours; ſome ſingle, ſome double, ſome *white*, ſome *yellow*, ſome large, ſome ſmall; and of all theſe Sorts ſome are earlier, and ſome are later, and according to their different Sorts require a different Culture.

The Italian-Narciſſus.

This Plant, Monſ. Liger ſays, *has a yellow* Cup and a *white* Flower, it requires to be planted in a light Earth, ſuch as is that of a Kitchen-Garden without any Mixture, and in the open Air.

Narciſſus's whether planted in Compartments or Beds, muſt ſtand about four Inches from one another. They will look very handſomely among *Hyacinths* and *Tulips*.

The Narciſſus *of* Conſtantinople.

Deſcription.] Of this Kind there is a *Narciſſus*, which ſhoots forth twelve Flowers with *white* thick Leaves at the Top of its Stalk, having other ſmaller Flowers of a *yellow* Colour in the middle, in like Manner as the Cup.

Soil.] It requires a light Earth, ſuch as a Kitchen-Garden-Earth without Mixture.

Culture.] This is a fine Flower, but there is ſome trouble about it in opening, eſpecially when it comes to form its Head; becauſe at that Time its outward Tunicle is apt to be blaſted by Fogs and Colds, which often cauſe it to miſcarry. In order to prevent this it is better not to plant it before the End of *February*, and to keep it from Cold by covering it in the Night, after it has begun to ſhoot forth its Stalk, but in the Morning, if the Weather is like to prove fair, to uncover it.

To keep the Flower in blow you ſhould ſlit the Tunicle, that contains the

Flower very neatly, this will aſſiſt it to come forth the ſooner, and prevent it from being ſuffocated by its Membranes, which keep it locked up too cloſely.

Theſe *Narciſſus's* muſt be diſplanted every Year, and carried to ſome very dry Place: For if they were to be left in the Ground they would ſhoot forth ſo many Suckers, as would ſo weaken the Plants as to prevent it from blowing.

Mr. *Carpenter* ſays, that he has had Roots of this Plant from *Genoa*, in *March*, when the Flower-Stalks were ſhot three or four Inches long out of the Bulb, which were planted both in Pots and Borders, and alſo in Beds; and that altho' they had been in their Paſſage to *England* ſtiffled up in Cheſts for ſeveral Months, they all flowered very well.

There is beſide this another *Narciſſus* that has larger Leaves, and its Cup of a *greeniſh yellow*: This Sort requires the ſame Soil with the former, and an Expoſure not too much in the Sun.

The *yellow* pale *Narciſſus*, whoſe Leaves are commonly parted and curled, grows better in Pots than in the open Ground. It requires a leaner Earth than the former, that it may ſhoot forth but a few Suckers, and ſo its Flowers will be the fairer. Too great a Heat of the Sun will be injurious to it; it requires watering at Times, till its Leaves are quite dryed up. *If it be planted in a Pot*, it will not be ſo liable to a Sort of Humidity wherewith fat Soils abound and is contrary to it.

The Spaniſh-Narciſſus.

This *Narciſſus* is both double and ſingle, and requires the ſame Soil and Culture with the *yellow* Sort. You muſt not fail to diſplant them every three Years, that the new Productions may be ſevered from them; nor to change their Earth, and plant them again ſix Days after.

Theſe two laſt *Narciſſus's* require, that their Flowers be not ſuffered to be too large upon their Stalks, leſt the Bulbs being drained too much of their Subſtance, they ſhould languiſh and die.

The white Autumnal-Narciſſus.

This Plant requires a lean Earth and a ſmall Quantity of it, needs not be planted above two Inches aſunder and three deep, and does not love too much Sun.

The incomparable *Narciſſus* that of the *Indies*, with Flowers like a *Lily*, of a reddiſh pale Colour, and all other *Narciſſus's*, Monſ. *Liger* ſays, in our Cilmate, require almoſt the ſame Culture.

The long necked Narciſſus.

This Plant is called Daffodil or *Camels-Neck*, becauſe of its long

Stalk, which when charged with Flowers, reſembles the Neck of a Camel; this Plant will thrive beſt in a fat Soil; you need only cover the Bulbs with it, and throw a little light Earth over it. It will not bear to be much expoſed to the Sun, becauſe when it does not blow ſoon, the Flower is the moſt beautiful.

The Bulbs are to be ſet a Foot deep in the Ground, at four Inches diſtance one from the other, that they may have the more Liberty to enlarge themſelves, and produce finer Flowers. It requires the ſame Culture as other *Narciſſus's*, and muſt be removed once in three Years.

The Narciſſus *of* Japan.

This is the moſt beautiful of all the Tribe of *Narciſſus's*.

Of theſe Plants Monſ. *Liger* reckons three Sorts, which he deſcribes as follows.

The firſt Sort from its Bulb ſhoots forth a ſmooth Stem about a Foot and half high, as thick as one's little Finger; at the End of this grows a Sort of Sheath, which when it blows produces ſeveral Cups each ſuſtaining a Flower like a *Lily*, compoſed of ſix radiated crooked Leaves, each ſupported by a large Stalk of a *yellowiſh red* Colour, in the middle of theſe Flowers grow ſix Pivots, which at the Top bear Stamina's of a red Colour falling into the Shape of a Penthouſe. They flower towards the latter End of *May* or Beginning of *June*; when the Flower is fallen two or three Leaves ariſe from their Bulbs, ſomething like thoſe of the Day *Lily*, but larger and *greener*, and marked with little red Spots.

The ſecond Sort is a greater Rarity than the firſt, it is alſo ſhaped like a *Lily*, the Flower Leaves ſtretch out further and decline leſs, it bears more Flowers than the firſt Sort, in Colour *white* and *red*; the Flower is infolded with a Cover, compoſed of *white Membranes*, which diſcover the Flower-Leaves as they open, which are *reddiſh*, reſembling a Bunch of Feathers, which when they are thoroughly blown, look like a *Marygold* of a ſoft *red* and pale at the Bottom, both within and without; theſe Flowers blow in *September*. Out of the middle of theſe Flowers ariſe ſix unequal Plants, at the Top of which grow *Stamina's*, like Saffron, of a red Colour, falling down like the Tops of Fennel.

The third Sort differs little from the former, except that it is of a brighter *red*, and the Flowers neither ſo many, nor ſo large, the Root of it being ſmaller.

Theſe Plants are increaſed by Bulbs, which are better managed in Pots than the plain Ground, for the Conveniency of giving it as ſunny an Expoſure as is requiſite for the blowing of the Flowers; theſe Pots ſhould be filled with a very light Earth, *viz.* two thirds of *red* Mould and one of common Earth well ſifted. In this the Bulbs are to be ſet two or three Inches deep, and ought not to be taken up till the ſecond or third Year, and always in *March*, to remove the Suckers. After theſe Bulbs are planted in Pots, they muſt be ſet in warm, dry places, ſecure from Froſts; but muſt not be watered till *May*, then they are to be watered throughly, till the Water ſwims on the Surface, and then be placed where the Sun has the greateſt Power. After this wetting, unleſs it be in a very wet Seaſon, they muſt be watered as often as the Heats will permit.

They muſt have the hotteſt Expoſure of the Sun till *October*, or elſe they will be ſpoil'd; and by this Culture, they will produce both good Store of Suckers and beautiful Flowers.

You muſt not remove the Maſter-Root the Year following, but only remove the old Earth that covers it, and put freſh in its Place, and not water it till *May*, as has been ſaid before, but in the third Year it is to be raiſed up to diſburthen it of its Suckers.

The other two Sorts of *Narciſſus* of *Japan*, love a ſandy Soil, mixt with ſome Kitchen-Garden-Earth well ſifted, and in other Reſpects are cultivated like the firſt.

3. NASTURCES, *or* CAPUCHIN-CAPERS.

THIS Plant *bears a pretty large Leaf, and a Flower of* an *Orange*-Colour; the Shape of the Seed is ſomething like that of a Pyramid, divided by Ribs, having all its Superficies engraven and wrought all over, of a *greyiſh* Colour, inclining to a *light Cinamon*: The Seed is apt to fall as ſoon as ripe, and therefore muſt be carefully gathered. It is multiplied only by *Seed* ſown in a Hot-bed, about the latter End of *March*, or Beginning of *April*: The Plants are afterwards to be taken up, and replanted againſt ſome Wall.

4. NATURE.

NATURE is a Word that carries with it divers Significations:

1. It is often us'd to ſignify the Syſtem of the Univerſe, and the whole viſible and created World.

2. Sometimes it is us'd to ſignify the eſſential Properties of ſome Things, with the Attributes thereunto belonging: Thus we ſay, it is in the Nature of a Soul to think, of GOD to be Good; of the Soul to think, or of a Stone to gravitate.

3. In a large Senſe it is us'd to ſignify the Univerſal Diſpoſition of all Bodies; and in this Senſe it ſignifies nothing elſe but the Divine Providence, forasmuch as that governs and directs all Things, by certain Rules and Laws accommodated to their ſeveral Conditions of Exiſtence.

4. It is uſed in a more ſtrict Senſe to ſignify the peculiar Diſpoſition of Parts in ſome par-

ticular Body: Thus we uſually ſay, it is the Nature of Fiſh to live in Water.

The Word *Nature* is likewiſe explicated by another Naturaliſt, to the Purpoſe following.

1. By the Word *Nature*, is ſometimes underſtood GOD Himſelf, as Creator of all Things, and is term'd *Natura Naturans*; becauſe all Things come from Him; are all in Him, and all move and are mov'd at his Will and Command; there being no other but Him to ſuſtain and rule them. And ſo, when we ſay, there cannot be in *Nature* a Want of neceſſary Things; it is as much as if we ſaid, GOD is ſo merciful, as not to let us want any of thoſe Things that are neceſſary for our Suſtenance. And thus GOD is underſtood by the Word *Nature*.

2. The Word *Nature* is us'd to ſignify whatever is in the whole Univerſe, as well *above* as *under Heaven*; *above* or *under* the *Earth*; in the *Waters*, in the *Air*; and even in all the *Elements*. So when we ſay *Nature* never grows old; we mean, the World has no natural Tendency towards its Decay. The *Sun*, the *Moon*, the *Stars*, and the *Elements*, the *Earth* and the *Sea*, neither grow old, nor ſuffer any Corruption by *Nature*; but are ſteady and permanent. And tho' we ſhould allow the *Earth* to be a little altered ſince the Creation; yet it never yet went ſo far as to be corrupted.

3. *Nature* is very often us'd, *to ſignify the* Conſtitution or *Temper both of Men* and *Things*; as alſo the Qualifications or Virtues which GOD has beſtow'd upon them. Thus it is common to ſay; the *Nature* of that *Man* or that *Tree*; for they neither of them can do or produce any Thing but what is agreeable to their Conſtitution, whether it be *hot*, *moiſt* or *dry*.

4. *Nature* is alſo us'd, to ſignify the Form or inferiour Being, both in Reſpect to Man, and other Things; in which Life and Motion is found: Thus when we ſay, *Nature* moves gradually in her Work; we mean, That the Form or Soul which is within, does not carry all Things to the higheſt Perfection at once; but proceeds from Imperfection to the moſt perfect Degree. It muſt be allow'd, That things grow by little and little; for it can never be, that a large Tree ſhould on a ſudden be produc'd from a *Bud* or *Twig*, or from a Bit of a *Root*, or a little *Seed* of another *Tree*. Nor do we ſee that Men are born as big as Giants.

5. *Nature* is us'd to ſignify the Form and Matter together, as, when we ſay, *Nature* goes beyond Art; we mean, That when we examine the inward as well as the outward Parts of a Thing, we find, That *Nature* can perform ſomething better and more excellent, than Art can do.

As to the Laws of Nature.] It is not here pertinent to mention thoſe Laws of *Nature*, ſaid by GOD to be implanted in Man, as to Religion or Morality; but rather thoſe Laws of Motion, by which all Natural Bodies are commonly govern'd in all their Actions one upon another, and which they inviolably obſerve in all the Changes which happen in the natural State of Things. And theſe are ſuppos'd by Naturaliſts to be reducible to theſe which follow :

1. That all Bodies do perſevere in the ſame State of *Reſt*, or of *moving forward* in a *ſtrait Line*, except they be forc'd out of that State by ſome impreſs'd Violence outward ; that is, all Bodies that are *at reſt* will for ever and of themſelves naturally continue *in Reſt*, except they are put *into Motion* by ſome external Cauſe : And all Bodies that are in Motion will for ever naturally move forwards in the ſame *ſtrait Line*, except ſome oppoſite Force ſtops them, or that ſome differently directed Violence turns them out of their Courſe

2. The *Changes* which are made in the Motions of Bodies, are always in Proportion to the impreſs'd moving Force, and are produc'd in the ſame Direction with that of the moving Force.

3. That *Repulſe* or *Re-action* is always equal to Impulſe or Action ; or in other Words, That the Action of two Bodies one upon another is always equal, but with a contrary Direction, *i. e.* The ſame Force, with which one Body ſtrikes upon another, is return'd by the firſt upon that other ; but theſe Forces are impreſs'd with contrary Directions.

In Illuſtration *of the Three foregoing Laws of Motion, take what follows :*

As to the Firſt of thoſe Laws of Motion, *That all Bodies do perſevere in the ſame State of Reſt or Moving, &c.* conſider how inviolably this Law is obſerv'd by Natural Agents : For it never has yet been obſerv'd that any Body did bring itſelf from *Reſt* to *Motion* ; nor that ever any Body in *Motion* did bring itſelf to *Reſt* ; nor that ever any Body in Motion altered its Courſe of itſelf : But that there were always evident Cauſes, wherever ſuch Caſes have happened.

If it were ſo, that Bodies of themſelves did change their Places, then all Things would run into Confuſion ; nor would there be any certain Means to regulate the Univerſe. It is certain, that *Projectiles* would for ever move on the ſame ſtrait Line, were not their own Motion ſtopp'd by the *Air*, their own *Gravity*, or the *Ruggedneſs* of the Place on which they moved ; or if ſome Body by a different Direction did not alter their Courſe. For Inſtance, a *Top*, whoſe Parts, by their Coheſion , hinder one another's rectilinear Motions, if the Air did not gradually impair its Motion, would for ever turn round.

Natural Bodies conſiſt of a Maſs of Matter which can never alter its State of itſelf ; and Bodies that are once at reſt, muſt continue ſo, 'till ſome new Force put them into Motion. If Bodies are once *in Motion*, the ſame Energy will continue them in Motion, and drive them forwards with the ſame Direction.

And beſides, There is in Matter a *Paſſive Principle*, which by Sir *Iſaac Newton* is aptly call'd, The *Vis Inertiæ*; by which Principle, Bodies do to the utmoſt of their Power reſiſt any Change or Alteration of their State, whatever it be, either of *Reſt*, *Motion*, or its *Direction*; and this Reſiſtance is always equal in the ſame Body; and in different Bodies is proportional to the Quantity of Matter they contain.

There is as much Force required to ſtop a Body in Motion, as is requir'd to put it into Motion, and on the contrary: And therefore ſince the ſame Body reſiſts equally the contrary equal Changes of the State; this Reſiſtance will as powerfully operate to keep a Body in *Motion*, as to keep it at *Reſt*, and by Conſequence it can never change its State of *Reſt*, *Motion* or *Direction* of itſelf: For to change its Direction, and of itſelf to move itſelf another Way, is one and the ſame Thing. So that *Matter* of itſelf is ſo far indifferent as to *Motion* or *Reſt*, that it is not inclin'd more to one than it is to the other; and does reſiſt a Change from *Reſt* to *Motion*, as much as it does from *Motion* to *Reſt*.

This Paſſive Principle in Matter, or *Vis Inertiæ*, is very conſpicuous in the Motion of a Veſſel full of Liquor upon a Horizontal Plane; for at the firſt, while the Veſſel is in Motion along the Plane, the Liquor in it ſeems to move with a Direction contrary to that of the Veſſel, the Water riſing on the hinder Side of the Veſſel.

This is not becauſe there is any ſuch Motion impreſs'd upon the Water, but becauſe the Water endeavouring by its *Vis Inertiæ* to continue in its State of *Reſt*, the Veſſel is not able to communicate its Motion to it immediately, becauſe of the Bulk and fluid State of it; but the Water perſeveres in its State of Reſt, while the Veſſel makes forward, and ſo ſeems to move a contrary Way. But as ſoon as the Water has the Motion of the Veſſel intirely communicated to it, and begins to move with a Velocity equal to that of the Veſſel; if you ſtop the Veſſel on a ſudden, the Water ſtill continues its Motion, and daſhes over the Sides of the Veſſel.

This *Vis Inertiæ*, or Paſſive Principle, is eſſential to Matter; for it neither can be depriv'd of it, nor intended or remitted in the ſame Body, but is always in Proportion to the Quantity of Matter Bodies do contain.

From what has been before ſaid, the following Corollaries may be deduc'd:

1. It appears plain from hence, That neither any Particle of Matter, or Combination of Particles, *i. e. No Body*, can either move of it or themſelves, or alter the Direction of their Motion by themſelves: For *Matter* is not endow'd with Self-motion, nor with a Power to alter the Courſe in which it is put; but is merely Paſſive, and muſt of itſelf for ever continue in that State and Courſe that it is

ſettled in, for ever; and if it cannot move of itſelf, it never can of itſelf alter its Courſe, when it is in Motion: For of itſelf to alter its Courſe, is no other than to move of itſelf after a particular Manner.

2. It is alſo plain from hence, That no Body, when it is once put *into Motion*, will of itſelf naturally move in a curve Line. All Motion is naturally forward in the ſame ſtrait Line with the Direction of the Moving Force; but whatſoever does move in a curve Line, muſt alter its Direction in every Point; and therefore no Body can naturally move of itſelf in a curve Line.

3. Hence it appears, That thoſe Great Bodies the *Planets*, their *Satellites*, and *Comets* (tho' they are at firſt put into Motion) do not naturally, and of themſelves, move in their reſpective Orbits, which are curve Lines, returning into themſelves; but are kept in them by ſome attracting Force; which if it were once ſuſpended, they would run out in right Lines for ever: And of Conſequence, the Motions of theſe vaſt Bodies in their Orbits depend abſolutely upon this attracting Force. And thence it is,

4. That neither *Motion* nor *Reſt* (not one of them particularly) is eſſential to Matter: That is as much as to ſay, That Matter is indifferent as to either of theſe particularly, and does no leſs reſiſt its being chang'd from *Reſt* to *Motion*, than it does being chang'd *from Motion to Reſt. And as any Force* will impreſs ſome Degree of *Motion* on a reſting Body; ſo in like manner, the ſame Degree of Force being impreſs'd at the ſame Time with a contrary Direction, will bring it again to *Reſt*; but it is not abſolutely neceſſary, as to the Being of Matter, that it be either in *Motion* or *Reſt*. For, let Matter be in which of theſe States ſoever, it will ſtill be Matter. And ſo, ſince the *Vis Inertiæ* or paſſive Principle is eſſential to Matter, it thereby becomes indifferent as to *Reſt* or *Motion*, and is equally ſuſceptible of either, according as the external Force urges it.

5. Hence may be demonſtrated the Neceſſity of a *Vacuum*, or Space diſtinct from Matter: For ſince it is ſo that all Bodies do by their *Vis Inertiæ*, to the utmoſt of their Power, reſiſt any manner of Change or Alteration of their State either of *Reſt* or *Motion*; and ſince the Reſiſtance is always equal in the ſame Body, or the ſame, and in different Bodies is proportionable to the Quantity of Matter whereof they conſiſt; and ſince, by Conſequence, if two Bodies which contain equal Quantities of Matter, moving with equal Quickneſs in contrary Directions, ſo that they ſtrike directly upon one another, they will for certain both *reſt* or *ſtop* at the Point of their Meeting or Concourſe; as alſo it being demonſtrable, That two Bodies moving with equal Celerities contrary one to the other, and both reſting when they meet, are equally heavy; it thence follows of Neceſſity

that two Bodies, which contain equal Quantities of Matter, are equally heavy: And if this be allow'd; If there were two Spheres of equal Diameters, and there were no Vacuities in Bodies, they would contain equal Quantities of Matter, and of Conſequence would be of equal Weight, *i. e.* Two Spheres, the one of *Wood*, and the other of *Gold*, would have the ſame Specifick Gravities; but this being contradicted by Experience, Vacuities in the Sphere of Wood muſt of Neceſſity be admitted to anſwer for the Difference of their Gravities.

As to the Second, *That the Changes made in the Motion of Bodies are always proportional*, &c. that may be illuſtrated by the following Conſiderations:

Effects are always in Proportion to their adequate Cauſes; and if any Degree of *Force* produce any Degree of *Motion*, then it follows, That a double Degree of the ſame Force will produce a double Degree of Motion; and a three-fold Degree of the ſame Force, a threefold Degree of the ſame Motion; and ſo on: And this Motion muſt of Neceſſity proceed in the ſame Direction as that of the Force moving, ſince the Motion is cauſ'd only by it; and becauſe by the former Law, Bodies which are in Motion cannot change their Directions of themſelves; ſo that except their Courſe be altered by ſome new ce, the Bodies muſt proceed *e ſame Direction* with that *moving Courſe.* And if a Body was before in Motion, the Motion which ariſes from that impreſs'd Force, if in the ſame Direction, does ſo much increaſe the former Motion; if it has a contrary Direction, it deſtroys a Part of the former Motion, equal to that which is impreſs'd; when it has a Direction oblique to the former Motion, it is either added to or ſubtracted from the former Motion, according as the Motion, ariſing from a Compoſition of theſe two, is determined.

From what has been ſaid, it plainly appears, That in the preſent Conſtitution of Things, there can be no perpetual Motion. By a *perpetual Motion* you are to underſtand an uninterrupted Communication of the ſame Degree of Motion, from one Part of Matter to another in a Circle: Not as Bodies, which are put into Motion, do for ever continue in the ſame, unleſs ſo far as they are reſiſted or ſtopp'd by other Bodies; but a Circulation of the ſame Quantity of Motion, ſo as it returns perpetually undiminiſh'd from the firſt Mover.

For, Motion produc'd (by this Law) is but proportionable to the Force generating; and all the Motions which are perform'd on this Globe, being perform'd in a reſiſting Fluid (the Air) a conſiderable Quantity of this Motion muſt neceſſarily be ſpent in the Communication, on this *Medium*, and ſo of Conſequence it is impoſſible that the ſame Quantity of Motion ſhould return undiminiſhed upon the firſt

Mover; which is neceſſary, in order to a *perpetual Motion*.

Beſides, ſuch is the Nature of material Organs, That a greater or leſſer Degree of Friction cannot be avoided, although the Machine ſhould be framed according to the moſt exact Principles of *Geometry* and *Mechanicks*, there not being in Nature any Congruity that is perfect, or Smoothneſs that is exact; the manner of the Cohæſion of Bodies; the ſmall Proportion the ſolid Matter bears to the Vacuities in them, not admitting of them ſo to be. And beſides, an ordinary Microſcope will diſcover how very imperfect our moſt finiſhed Mechanick Performances are.

Now as the Things before-mentioned muſt very conſiderably diminiſh the Force communicated, it is impoſſible there ſhould be a perpetual Motion, except the Force communicated were greater than the Force generating, by ſo much as to make Amends for the Diminution made therein by all theſe Cauſes; ſo that the Motion impreſs'd may never return undiminiſhed to the *firſt Mover:* But that being contrary to this Law, it is evident, that the Motion muſt decreaſe, 'till at laſt it ſtops, and ſo of Conſequence in the preſent State of Things, there cannot be any perpetual Motion.

As to the Third Law, *That Repulſe and Reaction is always equal to Impulſe or Action*, *&c.*

To illuſtrate this, conſider, That whatſoever preſſes or draws *another, is as much preſs'd* or drawn by that other. If a Stone be preſs'd with the Finger, the Finger is preſs'd by the Stone again. If an Anvil be ſtruck with a Hammer, the Hammer is ſtruck by the Anvil with equal Force. If a Horſe draw a Stone forward by a Rope, the Stone does equally draw back the Horſe; for the Rope being diſtended equally both Ways, does equally act upon both.

That the Steel draws the Loadſtone as much as the Magnet draws the Steel, appears evidently, by making both ſwim in Water. And in the Deſcent of heavy Bodies, the Earth is attracted by the Stone, as much as the Stone is by the Earth, *i. e.* The Earth gravitates towards the Stone, as much as the Stone does towards the Earth: And the Motions, which are produc'd by both theſe Gravitations, are equal in both, excepting that the Stone is altogether inconſiderable compared to the Bulk of the Earth; and ſo of Conſequence the Velocity of the Motion of the Earth towards the Stone is inconſiderable, compar'd to the Motion of the Stone towards the Earth; and therefore the Earth's Motion towards the Stone is inſenſible.

And univerſally in all the Actions of Bodies; if one Body act on another, and change its Motion any manner of Way, that other Body will make the ſame Change in the Motion of this Body, with a contrary Direction; ſo that there are equal Changes made by theſe Actions, of the Motion, but not of the

Velocities : For the Changes which are made on the Velocities in contrary Directions are in a Proportion, which is reciprocal to the Bodies.

5. NATURAL.

NATURAL is belonging to, or proceeding from *Nature.*

6. NATURAL FACULTY.

NATURAL FACULTY is that Faculty or Action whereby Bodies are increaſed, nouriſhed, or preſerved.

7. NATURAL PHILOSOPHY.

NATURAL PHILOSOPHY is a Science, which contemplates the Powers of Nature, the Properties of Natural Bodies, and their mutual Action one upon another.

8. NEBULOSE *or* NEBULOUS.

NEBULOSE or *Nebulous* ſignify cloudy, miſty, foggy, hazy.

9. NECTARINES.

NECTARINES take their Name of *Nectar*, in Latin, which the Poets feign, to be the delicious Drink of the Heathen-Gods, they are a Fruit of a very pleaſant Taſte. There are of them great Varieties, that grow in *England.*

Mr. Mortimer mentions the *red Roman-Nectarine*, as the faireſt, and eſteemed the beſt and moſt delicate Fruit for its Guſt; beſides theſe, the *Murrey* and *Tawney-Nectarines* are eſteemed by others, but neither of them are ſo large as the *Roman*; others eſteem the *Scarlet-Nectarine*, becauſe it leaves the Stone.

Beſides theſe, he reckons up the *Cluſter*, the *Ægol*, the *Genoa*, the great *green*, the little *green*, the *Orbine*, the *Perſian*, the *painted*, the *Ruſſet*, the *white*, the paper *white*, and the *yellow Nectarines*, as all very good Fruit.

The Culture of the *Nectarines* differing very little, if any thing, from that of *Peaches* or *Apricocks*, to them I ſhall refer, which ſee.

The *Nectarine*, Mr. *Bradley* ſays, has a near Reſemblance to the *Peach*, in every Thing but the Skin or Coat of the Fruit, which is ſmooth like the *Plum*; but if it be compar'd with the *Plum*, both the Leaves and Shoots are very different: Alſo the Stone of a *Plum* is always ſmooth, and the Stone of a *Nectarine* is rough. As to the *Almond*, that moſt reſembles the *Peach*; it has its Coat and Stone both rough, and ſeem to differ very little, unleſs the fleſhy Part that covers the Stone of the *Almond* is not a common Eatable; whereas the Fleſh of the *Peach* always is; ſo that ſometimes when he has eaten a *Peach* whoſe Fleſh was dry and hard, he has ſometimes thought that the Kernel of the Fruit might be as good as an *Almond*, or that it was of the *Almond* Race. Therefore it ſeems not improper to try the *Nectarine* on the *Dwarf Almond.*

10. NEMORAL.

NEMORAL ſignifies belonging to a Wood or Grove.

11. NEMOROSE.

NEMOROSE ſignifies full of Woods or Groves.

12. NEMOROSITY.

NEMOROSITY ſignifies Fulneſs of Woods, or Woodineſs.

13. NERIUM, *ſee* OLEANDER.

14. NERVES.

NERVES are long, tough Strings, which run a-croſs, or Length-ways in the Leaf of a Plant.

15. NIGELLA, *ſee* FENNEL-FLOWER.

16. NIGHT-SHADE, *or* MARVEL *of* PERU.

MR. *Liger* thus deſcribes this Plant: It has a Stem about two Foot high, very full of Branches, and ſet with broad, long Leaves: Its Flowers, according to Monſ. *Tournefort*, are ſhap'd like a Pipe, widening like a Funnel, indented like a *Pavilion*, and of a *ſcarlet* Colour, ſometimes variegated with *yellow* and *white*, and very pleaſing to the Eye. This Flower has two Cups, one of them ſerves for a Cover, and the other for a Support to prop it up. The laſt of theſe in Time becomes a Fruit ſomething round, fill'd with Seed of the ſame Shape.

Way of Propagation, Soil and Culture.] This Plant is rais'd by *Seeds* ſown in Beds, very thin, and is to be tranſplanted either in Borders or Pots; when it is tranſplanted into Borders, it is plac'd among Flowers of the largeſt Size, and as much in the Shade as may be, and it will thrive the better. If it be planted in Pots, they ſhould be fill'd with good Garden Earth, well ſifted, and the Superficies covered an Inch thick with Mould. It requires frequent Watering, and the Earth ſhould be hough'd about it once or twice. As to the further Manner of ordering it, it is the ſame with the *Female Balſam Apple*; which ſee.

Monſ. *Liger* ſays, There is one Advantage in this Flower, that it will blow beſt in ſuch Places, where others would do it but very indifferently: And that it is great Pity it does not blow in the Day-time, eſpecially when the Sun ſhines out; for if it did, it would be one of the greateſt Ornaments of a Garden, both as to the Beauty of its Flowers, and the great Number of them.

See *Marvel* of *Peru.*

17. Shrub Night-Shade.

THIS Plant, Mr. *Mortimer* ſays, has a woody Stock and Branches, *dark ſad green* Leaves, and Flowers like thoſe of the common *Night-Shade*: It is increas'd by Layers and flowers the latter End of *May*.

18. Night-Shade Tree.

THIS Plant, Mr. *Mortimer* deſcribes after this Manner: It riſes with a wooden Stem a Yard high, has *green* Leaves and *white* Flowers like Stars, with a *yellow* Pointel in the middle, ſucceeded by ſmall Leaves of a fine *red* in *December*, which incloſe ſmall *white* flat Seeds. It is rais'd by Seeds ſown in *March*, which is beſt to be done in Pots, that they may be hous'd in Winter; tho' Mr. *Mortimer* ſays it endures the Winter.

19. Nitre.

NITRE is defin'd to be a *Salt*, impregnated with abundance of *Spirits* out of the *Air*, which renders it *Volatile*.

Monſ. *Le Clerk* gives us the following Account of it: In *Egypt* they make a great deal of it, but it is not good, for it is dusky and full of Knots and Stones. It is made almoſt as Salt is; only they uſe Sea-Water in their Salt-works, and the Water of *Nile* about their *Nitre*. When the *Nile* retires, their *Nitre-Pits* ſtand ſoaking for forty *Days together*; but as ſoon as the *Nitre* is grown firm, they are in Haſte to carry it off, leſt it ſhould melt again in the Pits: They pile it up in Heaps, and it keeps very well. The *Memphian Nitre* grows ſtrong, and there are ſeveral Pits of Stone thereabouts. Out of theſe they make Veſſels, and ſome they melt down with Sulphur among their Coals. This ſame *Nitre* they uſe alſo about ſuch Things as they would have to laſt a long Time. The Proof of the Goodneſs of *Nitre* is, that it be very light, very friable, and very near of a *purple* Colour. That from *Lydia* is reckoned the beſt.

There is but little Difference between the Natural and Artificial *Nitre*. That the one refines itſelf, and the other is refin'd by Art, as *Salt*. And indeed all *Nitre* is a kind of *Salt*, and hardly differs from *Salt* properly ſo call'd, further than in theſe three Reſpects, That well refin'd *Nitre* is more acid and lighter than *Salt*, and eaſily takes Fire.

The Reaſon of this Difference, he ſays, ſeems to be, 1. That the Angles at both Ends of the oblong Particles of *Nitre* are ſharper than the Angles of the *Saline* Particles. 2 That the Particles of *Nitre* are finer, and fuller of Pores, which when the Particles of Fire get in, they ſoon put the *nitrous* Particles into a Hurry, 'till they break to Pieces, and turn to a Flame. *Nitre* exceeds *Salt* in Lightneſs, becauſe the *Saline* Particles contain more homogeneous Matter in the ſame Compaſs, than the *nitrous* do.

Thoſe who would know more of the Nature of *Nitre*, may peruſe the *Natural Hiſtory*, printed at *London Anno* 1670, by *William Clark.*

Dr. *Liſter* has view'd the Particles of *Nitre* through a *Microſcope*, and found them to have ſix Angles, Parallelogram Sides, and pointed like a Pyramid at one End.

A certain Gentleman, in a Letter to Mr. *Bradley*, acquaints him, That he is ſituated in a Country near a *Peter-Houſe*, or a Houſe where ſuch *Salt-Peter* as is brought from Abroad is boil'd and refin'd to make *Gun-Powder*. This is ſo near, as to communicate the Steam of the *Nitre* to the greateſt Part of his Orchard and Garden, and ſome are of Opinion, that it hurts his Trees and Plants ; but however his Orchard is influenc'd by it, it never fails to bring him a very plentiful Crop of Fruit every Year, altho' thoſe about him have but very little, or hardly any ; and yet his Garden is not leſs expos'd to blighting Winds by its Natural Situation, than the other Orchards in the ſame Town. He therefore is apt to judge, That the *nitrous* Vapour which mixes with the Air that ſurrounds his Garden, prevents Blights, and is noxious to the Caterpillars. He adds ; He remembers, that the Lord *Bacon* in his *Natural Hiſtory* commends the Uſe of *Nitre* for the Preſervation of Health in Human Bodies ; and moſt of the skilful *Botaniſts* have given it no leſs a Character for the Preſervation of Vegetables, if its Quantity be rightly proportioned.

A certain Author ſays, That the *nitrous Salts* ſeem to be aſſign'd by Nature chiefly for the Growth of Plants.

Mr. *Switzer* ſays, He is ſorry that he cannot ſubſcribe to the Opinion of thoſe learned Gentlemen, who imagine *Nitre* to be eſſential to Plants ; and that nothing in the Vegetable Kingdom is tranſacted without it : For by all the Tryals he has been able to make, it appears quite otherwiſe ; and when it is contiguous to the Plant, it rather deſtroys than nouriſhes it : But this *Nitre* and other *Salts* certainly do ; they looſen the Earth, and ſeparate the concreted Parts of it, and by that Means fit and diſpoſe them to be aſſum'd by the Water, and carried up into the Seed or Plant, for its Formation and Augment.

It is very obſervable, how all *Salts* are to be wrought upon by *Moiſture* ; how eaſily they liquidate and run with it ; and when theſe are drawn off, and have deſerted the Lumps, wherewith they were incorporated, thoſe muſt moulder immediately, and fall aſunder of Courſe. The hardeſt Stone, if it has any *Salt* mixt with the Sand of which it conſiſts, upon being expos'd to a humid Air, in a ſhort Time diſſolves and crumbles all to Pieces ; and much more will clodded Earth or Clay, which is not of near ſo compact and ſolid a Conſtitution as Stone is.

Let the Earth be never ſo rich, ſo good, and fit for the

Production of Vegetables, little will come of it, unleſs the Parts of it be ſeparated and looſe: And for this Reaſon is the Ground digged, plough'd and harrowed, and the Clods broken; and it is this Way that *Nitre*, *Sea-Salt* and other *Salts* promote Vegetation.

20. Nitrous.

NITROUS is mixt with, or abounding with *Nitre*.

21. Nodose.

NODOSE ſignifies knotty, or full of Knots.

22. Nodosity.

NODOSITY ſignifies Knottineſs, Fulneſs of Knots.

23. Noli Me Tangere.

THIS Plant is a Rarity, for that if you offer to take the Pods between your Fingers, they will fly to Pieces with a Snap, ſo as to make thoſe that are not aware of it ſtart; and from thence takes its Name of *Noli me tangere*, i. e. *Touch me not.* It is a Plant that is only propagated for Fancy ſake, and rais'd by Seeds; and, for the Rarity of it, may be planted among Flowers.

24. Nonesuch.

THIS Plant Mr. *Mortimer diſtinguiſhes into two* Sorts; *the ſingle Noneſuch Flower* of *Conſtantinople*, or *Flower* of *Briſtol*; and the *double rich ſcarlet Noneſuch.* The firſt of theſe is of three different Sorts, one bears a great Head of many *ſcarlet* Flowers; another differs only in the Colour of the Flowers, that at the firſt are of a *bluſh* Colour, but grow *paler*; and a third which has *white* Flowers. The ſecond Sort, or *double rich ſcarlet Noneſuch*, bears a large, double-headed Flower, of the richeſt *ſcarlet* Colour.

They are increas'd by young Roots taken from the old, at the latter End of *March*, when they come up with many Heads, each of which, if you part them with ſome Root to them, will grow, and quickly bear Flowers. They are a hardy Plant, but like not too hot or rank Ground; They flower at the latter End of *June*.

25. Northern Aspect.

MONS. *Gentil* ſays, Tho' the *Northern* Aſpect has leſs of the Sun than that of the *Weſt*; yet the *French* Gardeners ſay, it deſerves to be valued in the Climate of *Paris*, that is rather hot than cold; and therefore the *Summer Pears*, the *Monſieur Plum*, the *Apricock*, *Fig*, and *Verjuice Grape*, do in this Expoſition receive a moderate but ſufficient Heat, for the Nouriſhment of the Fruit, and bringing it to Maturity; tho' they own the Fruit will come later, of a fainter Colour, and of a more indifferent Taſte than thoſe that have the Advantage of the other Expoſures; but then they will grow larger, and keep the longer.

On this, Mr. *Carpenter* remarks, That tho' *Apricocks*, *Figs* and *Grapes* may ſucceed well in a *Northern* Aſpect, in the Climate of *Paris*; yet we cannot expect they will ſucceed ſo well in *England*: And therefore we uſually give them an *Eaſt* or *Weſt* Aſpect, and in ſome Places a *South*; yet he allows, that the *Northern* Aſpect is not without its Uſe; and it is very frequent to plant in it, *red* and *white Currants*, *Morella-Cherries*, baking *Pears*, and common *Plums*.

He adds, That in the moſt *Northerly* Part of *England*, and in bad Soils, ſcarce any Thing elſe will do; but in more *Southerly* and in good Soils, *Apricocks*, *Duke-Cherries*, and the beſt Plants will do well; and the Seaſon of each Kind being continued longer, by coming later, they will be much freer from Inſects, than thoſe that have a warmer Expoſure.

Monſ. *Quintiney* ſays, That among Wall-Trees, the Fruits of thoſe in the *South* and *Eaſt* Quarters do commonly ripen much about the ſame Time, except that the *South* has a little the Start of the other; and that thoſe on the *Weſt* are later by eight or ten Days, and thoſe of the *North* by fifteen or twenty.

Mr. *London* ſays, That tho' *Eaſt* and *Weſt* Walls may come ſo early in *France*, and the *North* Walls in ſuch a Time after them; yet we reject planting any Thing againſt *North* Walls to be eaten raw; but only *Pears* for baking, *Plums*, *Cherries*, &c. for baking or preſerving; unleſs ſome *Cherries* that come after the others, as has been ſaid before.

26. NOVEMBER.

Work to be done in the Kitchin-Garden, Orchard, &c. *this Month.*]

THIS Month being ſubject to violent Winds, froſty Nights, and great Rains, tender Plants ſhould be ſhelter'd, and new planted Trees ſupported with Stakes, that the young Fibres be not broken and wounded by the Winds; which interrupting the Paſſage of the Sap, frequently injures and deſtroys them.

Remove and plant Fruit-Trees; and furniſh your Nurſeries againſt the Spring.

Now, in ſome well expos'd Place, you may ſow *Hotſpur-Peas*, and ſet *Beans* of the *Spaniſh* Kind, to be early in the Spring.

Make Hot-beds for *Aſparagus*, to have ſome in *December*; and prepare a Hot-bed for *Cucumbers* ſown in *October*; and for *Kidney-Beans* ſown in the ſame Month: But theſe two are not to be planted together; for that Heat that *Cucumbers* require, will deſtroy *Beans*.

Trench your Ground, and lay it up in Ridges to mellow.

If any Roots are wanting in your Nurſery, ſupply it from ſome old Plantation which is worn out.

Prune *Vines*. Lay down *Vine*-Branches, eſpecially ſuch as you would have bear Fruit the Year following, to be ſet upon a Table in Pots, at great Entertainments.

Mr. *Bradley* directs for this Purpoſe, That the Branches be Shoots of the ſame Year which are to be ſo drawn thro' the Holes at the Bottom of a Garden-Pot, that when it is fill'd with Earth, there may be a reaſonable Number of Buds or Eyes above the Earth. And then a ſtrong Branch, he ſays, will bear eight or nine Bunches; and ſo according as it is in Proportion.

Earth up *Sellery*; tie up *Endive*-Plants for Blanching.

Sow *Lettuce*, *Creſſes*, *Muſtard*, *Radiſh*, *Spinach*, and *Turnips* upon Hot-beds, for young *Sallet*; and plant *Mint* upon moderate Hot-beds.

If the Weather be open, plant Trees, Suckers and Cuttings of *Gooſeberries*, *Currants* and *Vines*. Cover tender Seedlings.

Lay up *Carrots*, *Parſnips*, *Cabbages*, *Colliflowers*, &c. either for Uſe, or to tranſplant for Seed in the *Spring*. Take up *Potatoes* for *Winter* ſpending. If the Weather be fair, earth up thoſe *Beans* that were ſown in *September*.

Cut up *Aſparagus*-Haulm within two or three Inches of the Ground; and fling the Earth out of the Alleys upon the Beds; and if the *Aſparagus* has been worn, give it a Covering of rich Soil.

Cover Artichokes, *Strawberries*, *and other* tender Plants with long Dung, Horſe-Litter, Straw, or ſuch-like, to preſerve them from the Froſts. Trench and fit Ground for *Artichokes*.

Products of the Kitchin-Garden this Month.

For *Salleting*; the ſmall Herbs on the Hot-bed with *Burnet*, *Cabbage-Lettuce*, blanch'd *Endive*, young *Onions*, *Sellery*, *Cucumbers* on thoſe Plants ſown in *July*.

For *boil'd Sallets*; *Cabbages*, *Sprouts* of *Cabbages*, *Savoy-Cabbages*, *Spinach*.

Pot-Herbs; *Beets-Leaves*, *Clary*, *Parſley*, *Savoury*, *Sellery*, *Sorrel*, *Thyme*.

Roots; *Beets*, *Carrots*, *Horſe-Radiſh*, *Garlick*, *Onions*, *Parſnips*, *Potatoes*, *Skirrets*, *Scorzonera*, *Turnips*.

Alſo *Artichokes* and *Colliflowers* in the Conſervatory.

Fruits; *Apples*, *Bullaces*, *Pears*, *Cheſnuts*, *Hazlenuts*, *Walnuts*, *Medlars*, *Figs*, *Grapes*, Tree-*Strawberries*, *Services*.

Works to be done in the Flower-Garden, and Green-Houſe.

About the Beginning of this Month, plant in Pots *Hyacinths*, *Jonquils*, *Narciſſus's* and *Polyanthus's*; and ſet them in Hot-beds, that they may bloſſom about *Chriſtmaſs*.

Shelter your young Seedling Bulbs from the Froſts; but give them Air every Day, or they will not live.

Lay your *Auricula*-Pots upon their Sides, the Plants towards the Sun ; becauſe both the Froſt is injurious to them, and the Wet rots their Leaves.

If the Weather be open, you may ſtill tranſplant *Honey-ſuckles*, *Jeſſamines*, *Lilacs*, *Roſes* and *Syringa's*.

Cover peeping *Ranunculus's*, *&c.* and other green Seedlings, eſpecially if the Snows be long, and the Winds ſharp.

Tie up tall Trees and Shrubs to Stakes, to preſerve them from the Winds. Un-nail your *Paſſion-Trees*, and lay them on the Ground, that you may cover them with Straw when the ſevere Froſts come.

Now is the beſt Time to plant the faireſt *Tulips* in Places of Shelter. Tranſplant ordinary *Jeſſamine*, &c.

Cut down the Stalks of ſuch Flowers as blow tall, that have done blowing, within three Inches of the Root.

Houſe the beſt *Carnations*, or rather ſet them under a Pent-houſe, againſt a *South*-Wall, to keep them only from the Extremity of the Weather.

Lay up Heaps of Earth for your ſeveral Sorts of Flowers ; and make Mixtures proper for the ſeveral Exoticks.

Plant *Roſes*, *Althæa Frutex*, *Cityſus*, *Peonies*, *Lilac*, *Syringa's*, *&c.* and all *fibrous Roots* ; ſet *ſtony Seeds*, *&c.* Prepare Matraſſes, Boxes, Pots, *&c.* for Shelter for new-ſown Under-Plants and Seedlings.

If the Weather is not very ſevere, open the Windows of the Green-houſe a little, *eſpecially if the Sun ſhines* ; and at the ſame Time water ſuch Plants as require it. Let your Water, you water your hous'd Plants with, be pure Water, without Mixture of Dungs, or other hot Ingredients, for they ſpoil Plants. But you can hardly be too ſparing of Water to moſt of your hous'd Plants, which ſhould be done only when the Leaves ſhrivel and fold up.

If the Froſts begin to ſet in, hang up (at Nights only) a Charcoal Fire, when it has burnt 'till it is clear, near the Windows of your Green-houſe.

Flowers now blowing in the Flower-Garden, or Green-houſe.

Aloes, *Amomum Plinii*, *Anemonies*, *Golden-Apples*, *Candy-tuft-Trees*, *Bellis*, *Carnations* in the Houſe, *Clematis*, *Ficoides*, *Gentianella*, *Geraniums*, *Stock-Gilliflowers*, *Spaniſh white Jeſſamine*, *yellow Indian Jeſſamine*, *Lauruſtinus*, *Leonorus*, *Myrtles*, *Musk-Roſe Panſies*, *Meadow-Saffron*, *Paſſion-Flower*, *Polyanthus*, *Double Violets*, *Veronica.*

27. NUCIFEROUS.

NUCIFEROUS ſignifies bearing or producing *Nuts.*

28. NUMEROSITY.

NUMEROSITY ſignifies Numerouſneſs, Abundance.

29. NURSERY *for* FRUIT-TREES.

IN Preparing and Ordering a Nurſery for Fruit-Trees, Mr. *Mortimer* adviſes, in the Choice of the Ground, That it be not Wet, or a very ſtiff Clay, nor Land rich with Dung; for ſuch are not fit for this Uſe.

Firſt of all, cleanſe the Ground, deſign'd for this Purpoſe, from Weeds, Roots, *&c.* towards the Month of *October*; and make the Mould very fine, and to plant this Nurſery with *Crab*-Stocks; but if they are not eaſy to be had, then inſtead of them you muſt plant thoſe you raiſe in your Seminary.

To obtain which, he adviſes, to keep, in Sand, the Stones of ſuch Fruit as are early ripe, 'till *October*; and to ſet them in Beds made for them, three Inches deep, and five or ſix Inches one from another, by a Line; then to let the ſecond Row be a Foot diſtant from the other, and ſo on: But if you do not raiſe them in Beds, then you muſt make your Rows two or three Foot diſtant one from another, that there may be Room to go betwixt them, to weed them: And to be ſure to keep every Sort diſtant by themſelves.

He adds, That all Stone-Fruit ſhould be ſown quickly after Gathering; for if you keep them long after, they will be two Years before they come up: If they have not all the Moiſture of *the Winter to rot* the Shells, the *Kernel will not* come up.

He ſays, That all Sorts of *Nuts* may be ſet after the ſame Manner.

Some Perſons propoſe this Method for the raiſing of *Stocks* from the *Seeds* or *Kernels*, of *Crabs*, *Apples* or *Pears*; that is, when you have made any *Verjuice*, *Cyder* or *Perry*, to take the Muſt, which is the Subſtance of the Fruit after the Juice is preſs'd out, and to ſift the *Seeds* out of it with a Sieve, the ſame or next Day before it heats; and ſo ſow them, as ſoon as you can, upon Beds made of fine Earth, very thick, becauſe ſome being bruis'd by the grinding or pownding, and others not being ripe, many of them will never come up: Then having ſown them, to ſift over them fine Mould about two Fingers thick, and to cover the Ground with *white Thorn* or *Furz*, 'till the Ground is ſettled, that they may not be ſcrap'd out of the Ground by Birds; and in the *Winter* to cover them with *Straw* or *Fern*, to keep them warm, which muſt not be remov'd 'till the *Spring*, 'till the *Seeds* begin to ſhoot, which is uſually in *May*. They muſt be well weeded, and if the Weather be dry, they muſt be water'd now and then; and then be defended againſt Moles and Mice.

To be furniſhed with ſuch Variety of *Stocks* which are neceſſary for ſeveral Sorts of Fruit-Trees to be rais'd, the *Seminary* ought to be fill'd with ſuch as are rais'd of *Cherry-ſtones*, *Peach-ſtones*, *Plum-Stones*, *Quince-Stocks*, *&c.* or ſuch as are rais'd of Suckers from the ſame, which are as good.

He ſays, The beſt and moſt expeditious Way to raiſe *Quince-Stocks* for a *Nurſery* is, to cut down an old *Quince-Tree* within two Inches of the Ground, in *March*; and a great Number of Suckers will ſpring from the Roots. That when theſe are grown Half a Yard high, they are to be covered a Foot thick with good Earth; and they muſt be watered when the Seaſon is dry; and in the *Winter* Time as ſoon as they have put forth Roots, they muſt be remov'd into the *Nurſery*, where, in a Year or two, they will be ready to graft with *Pears*.

Cherry-Stocks, and *Plum-Stocks* may be rais'd from *Suckers*, as well as from *Stones*, after the ſame Manner as *Quinces* are; only you muſt have Regard to the Kinds from whence they proceed.

Pear-Stocks may alſo be rais'd of *Suckers*, and tranſplanted like thoſe of *Plums* or *Cherries*; but thoſe that are rais'd of *Seeds* or *Stones* are accounted much better than thoſe that are rais'd of *Suckers* or *Roots*.

Theſe *Stocks*, when they are two Years old, or as ſome are of Opinion, one Year old, are beſt to be remov'd into the *Nurſery*, tho' they are never ſo ſmall, if they do but make large Shoots, obſerving to cut off the downright Roots, and the Tops and Side-Branches of them, leaving them about a Foot above the Ground, and not letting the Roots be too long, nor ſet too deep; becauſe they will afterwards be the more eaſily remov'd.

It is alſo neceſſary to remove *Seed-Plants* often, becauſe by that Means they get good Roots, which otherwiſe they thruſt down only with one ſingle Root; nor will they bear tranſplanting well without it.

The Reverend Mr. *Laurence*, treating of *Nurſeries*, recommends the Furniſhing them, as ſoon as may be, with Plants, which may be growing up, both to exerciſe Art and Skill, and to ſupply future Wants.

He does not approve of having them ſo far off, as not to be under daily and conſtant Inſpection; but rather adviſes, That the chief of them may have a Place in the beſt Garden, leſt they ſhould be forgotten or neglected; an irregular Figure in a Garden may be peculiarly ſubſervient to this Purpoſe, in that it may have ſeveral Triangular Spaces proper to raiſe ſeveral *Nurſeries*.

He would have one Place for tall Standards, *Apples*, *Aſhes*, *Elms*, *Limes*, *Oaks*, *Pears*, *Sycamores*, *&c.* which may be at ſome Diſtance from the Houſe: And another Place for Dwarfs, ſuch as are intended for *Apricocks*, *Cherries*, *Peaches*, *Pears* and *Plums*: And alſo a third *Nurſery* for all Sorts of Ever-greens, by themſelves. The two laſt, he thinks not improper to be made in ſome ſuch By-Places, as moſt Gardens will afford, and that without any Interruption to the Beauty of it.

The *Nurſery* for the taller Standards, ſhould be made in a good, rich, light Soil, from the ſeveral Sorts of Seeds peculiar to their Kinds, ſown in *October* or *November*. He ſays, *Crabs* and wild *Pear-Kernels* are to be preferr'd for *Stocks* to make *Apples* and *Pears*. *Elms* and *Limes* are to be rais'd from planted Suckers: And *Walnuts* ſhould be ſown with the *green* Shell upon them, to preſerve them from Mice. This *Nurſery*, if it be well manag'd and weeded for two Years, the *Crabs* and *Pears* will be fit for Graffing and Inoculating the third Year.

He adviſes, That the *Nurſery* of Dwarfs be by itſelf, that they may not be over-topt by taller Trees. Stones of *Apricocks* and *Peaches* are not proper to be uſed, to raiſe thoſe Sorts of Trees good or laſting; but collect, for that Uſe, the Stones of the *Pear-Plum*, *Muſcle* or *Bonum-Magnum-Plum*, which have been found, by Experience, to be better, and more laſting than any other. *Black-Cherries* are the only Stocks to raiſe all Sorts of *Cherries*; but the beſt *Plum* will do on any ordinary *Plum*, or Sucker; tho' it is not the beſt Way to uſe Suckers, even from the beſt Sorts; becauſe they are apt of themſelves to put forth Suckers ſo plentifully; and by that Means the Vigour of the Tree may be too ſoon exhauſted.

As for the third *Nurſery* of *Ever-greens*, that requires ſomething of different Management: For that there muſt be provided a Quantity of *Seeds* or *Berries*, of *Holly*, *Juniper* and *Yew*, which may be put into diſtinct but ordinary Pots or Boxes, putting ſome fine Mould over them in the Pot, and ſo bury them for one Year: For if they are ſown immediately (as other Seeds are) they will not come up the firſt Year; whereas, by thus laying them in Heaps in any By-Place for one Year, they will be ready to be ſown out, in Order, the Spring following; and then they will come up as other Seeds do. Theſe muſt be carefully kept clean from Weeds; for they eaſily choak all Plants of ſo ſlow a Growth: But tho' they grow but ſlowly the firſt two Years, yet afterwards they will make Amends for all your Care and Labour, by their Beauty, Uſefulneſs and vigorous Growth; whereas, if you procure theſe Plants out of the Woods or Hedges, they will mightily deceive you: The greateſt Part of them will die; and the reſt will only till you on in Expectation of their Growth, and but very rarely do prove vigorous and thriving Plants.

Firs and *Pines* are to be rais'd from thoſe little *Seeds* taken out of their large *Apples*; and they will come up the firſt Year, and quickly will become beautiful Trees, eſpecially in a cold Clay. *Pericantha's* and *Phyllirea's* will be beſt rais'd from *Layers*.

O A

1. Oak.

Various Sorts.] MR. *Evelyn* mentions four ſorts of *Oaks*, two of which are the moſt common in *England*; the *Quercus Urbana*, which he accounts the talleſt, being clean, and of a ſmooth Bark; and the *Robur* or *Quercus Sylveſtris*, which hath a kind of a *black* Grain, which ſpreads its Roots and Branches more than the other, keeps its Leaves all the *Winter*, but bears a ſmaller *Acorn*.

Mr. *Mortimer* ſays, He will not determine, whether theſe Marks are ſufficiently diſtinguiſhing of the Species; but ſince it is certain, that the more thriving an *Oak* is, the more ſappy it will be, and the longer the Leaves will hang on it; therefore adviſes, to gather *Acorns* for *Seed* from ſuch Trees as you like the Kind and Sort beſt.

Mr. *Bradley* ſays, he has obſerv'd about five Sorts in *England*; but only recommends two Sorts of them to be planted for Timber. The firſt, and beſt, in his Opinion, is the *Upright-Oak*, which grows more erect than the other; and the other is the *large-ſpreading-Oak*. Theſe Kinds, he ſays, have attained to ſuch a prodigious Stature, that the Timber of *one ſingle* Tree has been ſold for more than Fifty Pounds.

Way of Propagation.] Mr. *Mortimer* ſays, *Oaks* may be multiply'd either by *Layers* or *Seed*; but not to that Advantage of Bulk and Stature by the former as by the latter; nor will they be ſo well tranſplanted, as they may be when rais'd from the *Acorn*.

Where they are deſign'd to be tranſplanted into Walks, Groves or Hedge-rows, or other Places where Cattle come, the beſt Way to make them bear it is, to tranſplant them often, being firſt rais'd from *Acorns* in *Seminaries*; and after three Years Growth, tranſplanted into the *Nurſery*, where they ought to ſtand for ſeven or eight Years, or till they are about ſeven or eight Foot high; and then you may remove them; but with Care.

He ſays, 'tis the Nature of all ſuch Trees as are rais'd from *Seeds*, to put forth one downright Root firſt, and not the ſide Roots 'till the Tap-Root has got near the Bottom of the Soil, eſpecially in a looſe, hollow Ground; and ſo the main Roots going deep, the ſmall Roots, which are the chief Nouriſhers of the Tree, lie ſo deep that you cannot come at them, to take them up; but if you take them up young, while the Tap-Root is ſmall, and not ſhot too far down, you may cut off the Tap-Root, about a Foot long, and that will cauſe it to branch near the Top of the Earth; and by this Means you will have the Advantage of taking them up with ſmall Roots, when they are remov'd again.

He tells us, In order to prevent this Inconvenience, ſome Perſons put a ſmall Piece of Tile three or four Inches below the Place where they ſow their Seeds of Trees; and this ſtops the Running-down of the Tap-Root, which cauſes it to branch when it comes to the Tile, and very much increaſes the Number of the ſmall Roots; and is not only a great Advantage as to its Tranſplantation, but alſo where it is not remov'd but ſuffered to grow from the Seed.

Soil.] The *Oak* will thrive beſt on the *richeſt Clay*, tho' it will grow very well on *moiſt Gravel*, or the *coldeſt Clay*, which moſt other Trees have an Abhorrence to; nay that in ſome Places they will ſtrike Root even between *Rocks* and *Stones*, and will grow almoſt in any Kind of Land, and will penetrate very ſtrangely to come at a *marly* Bottom; and will often make Stands when they are oppos'd by a Variety of Footing, and then proceed vigorouſly again; as they either penetrate beyond, or maſter their Obſtructions, or meet with better Earth.

The moſt proper Time for Removing *Oaks*, is either in *October*, *as ſoon* as the Leaf begins to fall, or in *February*, juſt before the Sap begins to riſe. When they are planted, they ought not to be ſet deeper than they were before; for it is enough if the Roots be but covered ſo as to keep the Body of the Tree ſteady and erect.

Great Regard ought to be had to the Poſition of the Tree; for the *Southern* Side of the Tree being more dilated, and the Pores more expos'd to the Heat of the Sun, by a ſudden Tranſpoſition of the Tree in a cold Time of the Year, the Tree will be very much prejudic'd.

Mr. *Bradley* ſays, That ſome *Oaks* that have been ſown in Hedge-Rows, have in the Space of thirty Years, born a Stem of a Foot Diameter; and that he himſelf has ſeen ſome Seedling-*Oaks* of twenty Years Growth, which had never been remov'd from the Place where they were ſown, that have been near that Compaſs. And therefore,

He adviſes, That every Plantation of *Oaks* be ſet from *Acorns*, on the very Spot where they are to remain: And that the *Acorns* for *Seed* ſhould be choſen from thriving, vigorous Trees; and that, as to their Diſtance one from another, it be upwards of thirty Feet.

Mr. *Mortimer* ſays, That *Oaks* thrive beſt in *ſtiff Clay*, in the moſt *Southern*, warm Parts of *England*; but not ſo well in the *Northern* Parts, becauſe they have not ſo much of the Heat of the Sun, to warm thoſe cold Soils: For *Oaks*, as to the Soil, and Temperature of the Air, do not proſper either in very hot Countries, or very cold, but affect a temperate Climate; and this ſeems to be the Reaſon that our *Engliſh Oaks* ſo much exceed thoſe of all other Countries. And where *Oaks* grow naturally, and in abundance, it is a Sign of the Soil being rich, their liking the Soil, and the *Oaks* being good.

Mr. *Mortimer* adviſes, That if the *Oaks* are to be propagated for Timber, that their Heads be not cut off, nor that they be not lopp'd too much, except ſear and unthrifty Branches, or that you are about to remove them from a good Soil to a bad; for then in ſuch Caſe, you ſhould have as much Root and as little Top as you can: Or that you deſire them for Shade, bearing Maſt; or for Fuel.

Dr. *Agricola* gives us the following Account of the Methods of planting *Oaks* in the County of *Lunebergh*: They gather the *Acorns* when they are full ripe, *i. e.* about the Middle of *October*, ſooner or later as the Moon is in its Increaſe. They ſow them as thick as Corn, in a Field well plough'd and manur'd, and cover them with a Harrow. Or they ſow *Acorns* and *Corn* together; but in the Harveſt they leave the Stubble ſo long, as not to injure the Tops of the young *Oaks*. He approves the former Way rather than the latter, becauſe they may be trodden down by the Reapers; and the *Acorns* will either rob the *Wheat*, or the *Wheat* the *Acorns*: And adviſes rather to ſow them in the Place where they are always to remain; and to fence them with a good Hedge, to keep out the Hogs. He adviſes, rather to gather the *Acorns*, than to let them fall from the Tree; for if they are rather too ripe, they may be in Danger of being bruis'd.

As for the Time, he is for ſowing the *Acorns* in *Autumn*; becauſe, as the *Seed* being cover'd with a Rind of a good Thickneſs, it is not in much Danger of the Cold: But the ſureſt Way, he thinks, is to preſerve the *Seed* during the *Winter*, in a dry Vault or Cellar, ſtirring it three or four Times a Week; and if it ſweats, to cover it all over with wet Sand; and ſo to let it remain 'till it begins to ſhoot, and then to ſow it.

As to the Method of ſowing them as thick as *Wheat*, he diſapproves it; becauſe they will rob one another of their Juices, neceſſary for Vegetation: And alſo the Manner; becauſe ſometimes the Point or *Radicle* of the *Seed* is upwards, ſometimes downwards, and ſometimes on one Side; and according as they are more or leſs unnaturally plac'd, ſo they are more or leſs hinder'd in their Growth. He rather approves the Sowing or Setting them, by making Holes with a Dibble, in Rows, at a Span Diſtance, and three or four Inches deep; and not to put above one in a Hole, if the *Seed* be good.

The Direction he gives, for diſtinguiſhing the good *Seed* from bad, is, to fling them into Water, and the good ones will ſink to the Bottom; and if they have begun to put out Shoots, you may eaſily know which End to ſet downwards; but if they have not begun, then to ſet the pointed End downwards.

But the beſt Way of Setting them, is, to do it where they are always to remain; and if they come up too thick, to thin them. But if they are to be tranſplanted, that ſhould be done when they are Half the Height of a Man, to dig them up, taking Care not to wound the Roots; but if that happens, then to cut off all the wounded Part. The Time for Sowing or Tranſplanting, to be either in *October* or *November*; for what is ſown later, ſhoots in the *Spring*; and what is ſown in the *Spring*, begins to ſhoot about *Eaſter* and *Whitſuntide*.

Mr. *Cook* adviſes, if you deſire aſpiring *Oaks*, to gather *Acorns* from ſuch Trees, or rather from under them, when they are fallen, and in a dry Time, if it may be; then to lay them thin in ſome open Room to dry, and when they are ſo, to keep them in ſome dry Place 'till the latter End of *January*; and having digged and cleanſed ſome good, freſh, *loamy* Ground, to ſow them, and cover them an Inch and half or two Inches deep. He recommends this Time, as being leſs in Danger of being ſpoil'd by the Mice, or other Vermin. But if the *Acorns* happen to fall in a wet Seaſon, then they will, in a ſhort Time after, begin to ſpear out; and if you perceive them to ſhoot out a little Bud at the ſmall Ends, then commit them to the Ground as ſoon as may be: And being there repoſited, and having had a convenient Quantity of Heat and Moiſture, (*for without theſe* no *Seed* can *produce its Kind*) the *Acorn* cracks, and the Spears ſhoot into the Earth; and when the Seaſon is agreeable, the Body of the *Seed* turns either into Leaves, or ſpends itſelf into Leaves, and that little Part of the *Seed* the Spear, ſhoots forth Root, and the Shoot and Leaves. But if there be too much Heat or Moiſture, then the *Seed* ſpears forth; and if it be not committed to the Ground before it be dry'd, and the Spear withered, then the *Seed* will not grow. The Reaſon is, That *Nature*, if once put into Motion, will rather ceaſe to be, than alter it's Courſe. Therefore, if the *Acorns* have taken Wet, and the Heat hath made them ſpear, they muſt be ſown as ſoon as may be, and they muſt be ventured a whole *Winter* in the Ground.

Being thus ſown, they will come up the following *Spring*, and muſt ſtand two or three Years in their firſt Bed, being kept clear from Weeds. Then prepare a good Piece of freſh Ground, and if it be poor, manure it with Dung, or elſe good, freſh, rich Ground, which is better than Dung; cut the Tap-Root and the Side-Boughs, and ſet them in *Nurſeries*, as you do other Trees: Keep digging the Ground, and pruning the Trees up every Year, 'till you find them fit to remove, which they will bear better than if they had never been tranſplanted before: For the oftener you remove a Tree, the likelier it will be to grow when it is remov'd again, if it be not too large.

Having thus order'd the young *Oaks*, 'till they are ſix or ſeven

Foot high, you may tranſplant them where you pleaſe. To do this;

Firſt, make Holes four Foot wide, and at leaſt two Spades deep, at leaſt a Quarter or Half a Year before you plant your *Oaks* in them; if it be a whole Year ſo much the better, if the Mould that was thrown out of the Hole be kept clean from Weeds; and to do this, turn it often. If the Ground be poor, or ſuch as is contrary to what the Tree delights in, mix it with ſuch Earth as the Tree loves.

If it be *gravelly*-Ground, mix it with the upper Spade of Ground that is a *brick*-Earth; if *Clay*, mix it with a *light Loam*, or a *fat Sand*, or *ſmall Gravel*; and if it be poor, lay a little *rotten Dung* in the Bottom of the Holes; but put none of it among the Earth when you plant the Trees, to touch the Roots of them.

Having thus prepar'd the Holes; if the Ground be a dry Sort, begin as ſoon as you find the Leaf to fall, that is, in *October*; take up the *Oaks*, opening the Earth well round the Tree, keeping the Side of the Spade to the Body of the Tree, to prevent cutting the Root in taking it up, and dig deep round the Tree, that it may be pulled up eaſily; and this will hinder thoſe Roots that grow Elbow-wiſe; which if they do not break off, by pulling them up, they will crack ſo in the Elbow, that they will never grow, nor put forth Roots *below that Place.*

If you find any Roots crack'd, or much bruis'd, cut them off 'till you find firm, ſound Root. Prune your *Oak* up to a ſmall Head; if it be taper and ſtrait, prune it up to one Shoot; but if it be not taper, leave two Side-Boughs or more, to receive ſome of the Sap; and this will cauſe the Shoot which you deſign ſhall lead, to make the Body of the Tree the ſmaller, and ſo the Tree will grow taper. Top all the Shoots but the leading Shoot; for by Topping the other, that will grow the ſtronger.

Leave that Shoot which grows ſtraiteſt and ſtrongeſt; and if you leave any other Shoots, do not leave them right one againſt another; for that will make the Tree grow too thick in that Place too ſuddenly; but leave them one above another, and the Tree will grow the more taper; for it will be leſs and leſs upwards between the Shoots, which Shoots you muſt take off Year after Year, as the Tree runs up in Height, ſtill leaving ſome Side-Boughs to keep it taper, or elſe the Height in Timber will be loſt, or the Tree will grow too Top-heavy.

How Oaks differ according to their Soil.] He ſays, It is not a Hill or Valley, or a *Situation*, *North* or *South*, that makes the Grain of the Timber either finer or tougher; but if there be on the Top of the Hill, or on the *North*-Side, a feeding Ground, more than there is in the Valley or *South*-Side; a Tree there planted will produce the tougher

Timber: For where an *Oak* grows moſt in a Year, there the Timber will be the toughest, and the Tree ſhall have the moſt Sap; as on a Ground that is *deep* and *loamy*.

Whether it be Hill or Valley, if the Ground be *ſhallow*, and the Bottom *Gravel*, and that has not a Mixture of *Loam* or *Clay*, there *Oaks* will grow but ſlowly; and the annual Circles being cloſe together, the Timber muſt needs be the finer grained, and the Sap of ſuch *Oaks* is little.

Oaks grow quickeſt, moſt ſtately, and the Timber is tougheſt, which grow on a *loamy Clay*.

Thoſe *Oaks* that grow on *Clay*, altho' they ſometimes grow ſlowly, yet they laſt long; for that is a holding Ground, and produces great *Oaks*.

Gravel produces many *Oaks*, and ſtrait ones; they grow but ſlowly, and the Timber is fine; and they decay while they are young.

To remove a large Oak.] If the *Oak* be as big as your Thigh, (tho' if it be leſs, it will grow the better) take the Earth from about it, and cut through all the collateral Roots, 'till you can with Help force it down on one Side, ſo as to come at the Tap-Root with the Axe; then cut off that, and cut all the Roots ſmooth on the under-Side: Dreſs the Tree again, covering it about again with the Mould you looſened from about it, and let it ſtand 'till the next Year; then at a proper Seaſon take it up, and you will find at the Ends where the Roots were cut off, it will have drawn many tender young Roots; which will be apt to take Root, and ſufficient for the Tree, tranſplant it where you will. Another Way to do this, is as follows:

A little before the hard Froſts come, make a Trench about the Tree, at ſuch a Diſtance from the Stem as you think ſufficient for the Roots; dig this Trench ſo deep, that you come lower than the Side-Roots: If the Ground be of a dry Quality, water the Hill of Earth, except Rain ſaves the Labour; and when the Froſts come, they will lay hold on it the more; then lay Litter in the Bottom of the Trench, and that will keep that Part from Freezing, if there be occaſion to undermine it more, to looſen it when you take it up. Let it ſtand thus 'till the Earth is firmly bound to the Roots by ſome hard Froſt; and then remove it to the Place where you would tranſplant it.

The Hole being dug, as before directed, and the Earth being covered with Horſe-Litter, to keep it from Freezing, cover that cloſe round the Roots of the Tree with that Mould, and alſo the Ends of the Roots, and that will ſecure it the better, and you will do well to lay Litter round the Tree, on the Top of the Ground.

If it be a large Tree, and the Mould about the Roots be very heavy, you may then make Uſe of ſuch a Gin or Crane, wherewith Timber is uſually loaded, and ſo weigh it out of its Place; and having plac'd it upon a Trundle or Sledge, convey it to the Place where it is to be ſet; and with the ſame Engine, plant it in the Hole.

2. *The Ever-green* OAK, *or* ILEX.

MR. *Bradley* gives us an Account of the Tranſplanting of a large Number of *Ever-green Oaks*, which had ſtood in a Nurſery about twenty Years, without any Culture, 'till they were grown about thirty Foot high; which was perform'd in the Year 1714. Theſe Trees were taken out of the Nurſery in the *Spring* of the Year, with as much Earth about their Roots as poſſibly could be; and being carefully convey'd to the Top of a conſiderable high Hill, where there had been Holes made ready for them, and Banks riſing near a Foot above the Surface, of about one Part of the ſuperficial Earth, mix'd with *red, rocky* Soil. The chief Care in this Tranſplantation, was to ſet them no deeper in the Ground than they were before; to ſtake them up well, and to water them plentifully.

The *Avenue* was counter-planted with *Engliſh Oaks*, with the ſame Care, but the latter had not ſo good Succeſs; for ſcarce Four of a Hundred of *Engliſh Oaks* liv'd; and ſcarce Four out of the ſame Number of *Ever-green Oaks* fail'd.

3. OBLONG.

OBLONG is a Figure commonly call'd a Long-Square.

4. OCCIDENT.

THE *Occident* ſignifies the *Weſt*.

5. OCCIDENTAL

OCCIDENTAL, *Weſtern*.

6. OCCIDENT ÆSTIVAL

OCCIDENT-Æſtival is the *Summer-Weſt*, or *North-Weſt*.

7. OCCIDENT-EQUINOCTIAL.

OCCIDENT-Equinoctial, ſignifies that Point of the *Horizon* where the Sun ſets, when it enters the Points *Aries* and *Libra*.

8. OCCIDENT-HYBERNAL.

OCCIDENT-Hybernal is the *Winter-Weſt*, or *South-Weſt*.

9. OCTOBER.

Work to be done in the Orchard, Kitchin-Garden, &c. *in* October.

THO' we may expect tolerable Weather the greateſt Part of this Month; yet toward the latter End we muſt be ſure to ſecure all thoſe Plants that are in Danger of being injured by the Froſts and high Winds, from the Weather.

If it proves Windy, as it uſually doth, it finiſhes the Fall of the Leaf.

Plant *Quickſets*, and all Sorts of Trees for Ornament or Uſe, and plaſh Quickſet-Hedges.

Sow *Acorns*, *Nuts*, or other Sort of *Maſt* for Timber, Coppice-Wood, or Hedges.

Plant all Sorts of Fruit-Trees, or other Trees that ſhed their Leaves.

Lay open the Roots of old, unthriving Trees, or ſuch as ſpend themſelves too much, or too ſoon in Bloſſom.

Sow Fruit-Stones, Kernels, or Seeds, either for Trees or Stocks.

This Month is the beſt Time to plant *Hops*.

You may alſo ſafely remove *Bees*.

Plant Bulbous Roots of all Sorts; and plant and remove ſeveral Herbs and Flowers, which have been omitted to be done before.

In the firſt Week ſow *Cucumbers* in natural Ground, to be afterwards tranſplanted into Pots, that they may be ſhelter'd from the Cold of the Nights, 'till it is neceſſary to put them into a gentle Hot-bed.

This Method of Raiſing *Cucumbers*, in Order to their being forward, Mr. *Bradley* prefers to Beginning to raiſe them (as is uſual) in *December* or *January*: Becauſe theſe Plants thus rais'd, will be better enured to bear the Cold than thoſe that are rais'd when the Ground is cover'd with Snow.

Cut *Artichokes* with long Stalks, and ſet them in Sand.

Take up *Colliflower*-Plants which begin to flower; tye their Leaves together, and ſet their Roots and Stalks in Sand in a Cellar or cool Place; and the Flowers will both grow bigger, and keep good two or three Months.

Set *Kidney-beans* under ſome warm Wall in Baskets, that when the Seaſon grows ſevere, they may be ſet in moderate Hot-beds; and theſe will bear Fruit very early.

Take up *Carrots* and *Parſnips*, and dig a Trench ſix or eight Inches deep, in a dry Part of your Garden; and having cut off their green Tops and growing Buds, lay them cloſe together in the Trenches, and cover them about ſix Inches thick with Wheat-Straw, laid Ridge-wiſe; and this will preſerve them fit for Uſe 'till *June*.

Tranſplant *Cabbage* and *Colliflower*-Plants; and make your laſt Plantation of *Lettuces* to ſtand the *Winter*, ſuch as *Genoa-Lettuce*, &c. and earth up *Sellery* for Blanching.

Cucumbers ſown in *July* muſt be covered every Night, and the Glaſſes muſt be kept over them in wet or windy Weather; but in good Weather they ſhould have Air in the Day-time.

Sow *Peas* in a rich, warm Soil, to be early in the *Spring*.

Towards the End of this Month, earth up and dreſs ſuch

Colliflowers as have done Blowing.

Sow *Radiſhes* in a warm Place, that they may be fit to draw early in the *Spring*.

Sow *Creſſes*, *Lettuce*, *Muſtard*, *Radiſh*, *Spinach* and *Turnip* upon ſome decay'd Hot-bed, to be cut for Sallets.

Sow *Spaniſh-Beans*, and *Hot-ſpur-Beans* in ſome well expos'd Border, and rather under a Thick-ſet Hedge than a Wall.

Set ſome Roots of *Mint* in a gentle Hot-bed.

Plant *Gooſeberries*, *Currants* and *Rasberries*, from *Suckers* or *Cuttings*.

Plant *Apples* grafted on *Paradiſe-Stocks*, in Pots; for they will bear when they are very ſmall, and may be ſet upon a Table at an Entertainment.

The Products of the Kitchin-Garden in October.

Herbs for Soop, *&c.* are *Beets*, *Parſley*, and all the aromatick Herbs

Herbs for Sallets, are *Burnet*, *Chervil*, *Creſſes*, *Endive*, ſeveral Sorts of *Lettuce*, *Muſtard*, *Raddiſh*, *Rape*, *Sellery*, *Spinach*, *Turnip*.

Artichokes, *Colliflowers*, *Beans*, *Peaſe*, *Kidney-Beans*, ſown in *July*; *Cucumbers*, *Melons*, *Muſhrooms*.

Roots, *Garlick*, *Onions*, *Rocamboles*, *Shalots*, *Beets*, *Carrots*, *Parſnips*, *Potatoes*, *Skirrets*, *Scorzonera*, *Turnips*.

Works to be done in the Flower-Garden and Green-houſe.

Continue Sowing what you did in *September*; and alſo *Cyprus*, but not in froſty Weather.

Tranſplant and lay *Roſes*, and ſuch-like flowering Shrubs: Alſo plant Cuttings of *Honey-ſuckle* and *Jeſſamine*.

Plant *Ranuncula's*, *Vernal Crocus's*. Move Seedling *Hollibocks*, and others.

Put in your *Tulips*; and plant *Anemonies*.

Sow *Berries* of *Yew*, *Holly*, and ſuch *Ever-greens* as have been prepar'd in Earth or Sand.

Sow *Alaternus*, and the Seeds of *Phyllirea*.

About the Beginning of this Month, ſet into the Green-houſe *Amomum Plinii*, *Meleanthus*, *Marum Syriacum*, *Myrtles*, and other tender Greens, that have not yet been hous'd; and give them and all other Houſe-greens a freſh Covering of Earth; but take Care not to diſturb the Roots.

Bury all Sorts of *bulbous* Roots; and alſo *Iris's*, *&c.*

Set the Pots of *Carnations* now Blowing, into the Green-houſe, near the Door, that they may have as much Air as you can.

Beat, roll and mow your Walks and *Camomile*. Cleanſe your Garden of Trumpery and Weeds.

Fruits in Prime, or yet laſting.

Apples; the *Belle* and *Bonne*, *William*, *Coſtard*, the *Honey-meal*, the *Parſley-Apple*, the *Lording*, the *Pear-Apple*, the *Pearmain*.

Pears; the *Bergamot*, the *green Butter-Pear*, the *Bures du Roy*, the *Clove-Pear*, the *Lombert-Pear*, the *Law-Pear*, the *Thorn-Pear*, the *Ruſſet-Pear*, the *Rouſſet-Pear*, the *Petworth-Pear*, the *Vertue-Long*, the *Violet-Pear*, and the Winter *Windſor-Pear*.

Plums; Divers *September-Plums*; *Arbutus*, *Grapes*, *Bullace*, *Pines*.

Flowers now Blowing in the Flower-Garden, and Green-Houſe.

Aloes, *Amaranthus's*, *Amomum Plinii*, *Anemonies*, *Antirrhinum*, *Apocinum*, *Golden Apples*, *Arbutus*, *Aſters*, *Capſicum*, *Carnations*, *Balauſt Clematis*, *Colchicum*, *Saffron Crocus*, *Cyclamen*, *Ficoides*, *Geraniums*, *Stock-Gilliflowers*, *Hearts-Eaſe*, *Heliotropes*, *Jacinth*, *Common*, *Indian*, *yellow*, and *Spaniſh Jeſſamine*, *Leonurus*, *Limonium*, *Lychnis*, *Marvel of Peru*, *African* and *French Marygolds*, *Myrtles*, *Naſturtium Perſicum*, *Oranges*, *Paſſion-Tree*, *Phalangium*, *Polianthos*, *Pomegranate*, *monthly Roſes*, *Veronica*, *Viola Tricolor*, *ſingle Wall-flower*.

10. OCULATION.

OCULATION is the taking away of ſuperfluous *Buds*.

11. OCULUS.

OCULUS is the *Bud* of a Plant or Tree juſt putting forth.

12. OCULUS CHRISTI, or ASTER.

THIS Plant is thus deſcrib'd by Monſ. *Liger*. It ſhoots forth into ſeveral Stems about a Foot and a half high, round and hairy, of a *reddiſh* Colour, adorn'd with long Leaves, cover'd with a harſh Hair. The Stems are divided into Branches, at the Top of which grow Flowers of a *blue*, *violet* or *purple* Colour radiated: The *blue* is that which is moſt common. The Disks of the Flowers conſiſt of ſeveral Flouriſhes, and a Crown of Half Flouriſhes, reſting on the Embryos, and contain'd in a ſcaly Cup: Theſe Embryos in Time become a feathered Seed faſtened to its Bed.

This is a vivacious Plant, and is multiply'd by parting the Roots. It may be multiply'd by Seed; but the former is the beſt Way. If you multiply it by Seeds, you ſow it as other Seeds, and cover them with a little Mould.

If you multiply it by its Roots, take them up with a Spade, and part them, and ſet them in Borders, or where you pleaſe.

It is a hardy Plant, and will thrive in any Soil; requires no Watering, but what it receives from Heaven. It ought to be remov'd once in three Years, when it is plac'd in Borders;

becauſe it pullulates very faſt. If you would have it grow thick and buſhy, ſtir the Ground about it now and then with a little Pick-axe, eſpecially after a Shower of Rain.

13. ODORIFEROUS.

O*DORIFEROUS* having a ſweet Smell.

14. OLEAGINOUS.

O*LEAGINOUS* ſignifies *Oily*, or pertaining to the Nature of *Oil*.

15. OLEANDER, ROSE BAY-TREE, INDIAN LAUREL, *or* NERIUM.

THIS Plant is by *Botaniſts* call'd *Nerium*, from Νηρὸν *Greek*, moiſt; becauſe Humidity is eſſential to it, and it requires plentiful Watering during the great Heats of the *Summer*.

Various Sorts.] Mr. *Bradley* ſays, There are of this Plant ſeveral Varieties; the moſt common of them in the *Engliſh* Gardens, is the *ſcarlet Oleander*, and alſo that with a *white* Flower; and there are alſo the ſweet-ſcented *Oleanders*, with ſingle and double Flowers:

Mr. *Liger* thus deſcribes this Plant, That it is an *ever-green Shrub*, which from its Root ſhoots forth ſeveral ſtrait Branches garniſh'd with oblong Leaves about an Inch broad, of a *dark green* Colour, and pointed at the End. Along theſe Branches grow the *Flowers*, which are *monopetalous*, *i. e.* conſiſting of one Leaf in the Shape of an indented Pipe. Out of its Cup ariſes a Style, which ſticks to the hinder Part of the Flower, which becomes a round Fruit, having two Cells, fill'd with a hairy Seed.

He likewiſe mentions two Sorts of *Oleander*, the *Carnation* and the *White*. But Mr. *Carpenter* takes Notice of two other Sorts that are cultivated in *England*, call'd *The narrow-leaf'd Roſe Bay*, one with a ſingle Flower and ſweet; and the other with a double Flower and ſweet: Thoſe he ſays were brought into *England* from the *Dutch* Garden in *Ceylan*, in the *Eaſt-Indies*; and have ſucceeded very well in the Gardens of *Hampton-Court*: But are of a more tender Conſtitution than the common Sorts.

Mr. *Mortimer* ſays, The *Oleander* or *Roſe-Bay*, is a Plant that bears ſome of them *bluiſh*, and ſome of them *white* Flowers.

Way of Propagation, &c.] Mr. *Bradley* ſays, The *ſcarlet Oleander* is to be propagated by *Layers* in *April*, which will ſtrike Root to tranſplant the *Auguſt* following: That it is ſo hardy, that he has kept it Abroad all the *Winter*, without any other Shelter than a *South*-Wall. He adds, That the *white*-flowering Kind is as hardy as the *ſcarlet* Sort; but the ſweet-ſcented *Oleanders*, ſingle and double, are accounted more tender, and ſhould be hous'd with *Orange-Trees*. They all love a Medium Soil, without Mixture, and moderate Watering:

ing: Are propagated like the firſt. They bloſſom in *July* and *Auguſt*.

Mr. *Mortimer* ſays, That they are increas'd by ſlitting the Twigs in the Place where you would have them take Root, and laying them in the Ground, and keeping them indifferent moiſt; and then they will take Root eaſily. And that they are alſo increas'd by *Suckers* that have Roots to them. They may be planted out in *Summer*, and taken up and put into Pots again towards *Winter*, to preſerve them; and this will make them ſtrong. They will proſper well, if they be ſecured from the moſt violent Cold. They blow all *Summer*; and when in Flower can hardly be watered too much. They are commonly kept in Pots or Tubs; and the double Sorts are for the moſt Part kept in Glaſs-Caſes.

Monſ. *Liger* ſays, Theſe Plants are never ſown, either becauſe the Seed does not come to Perfection in our Climate, or becauſe the Way of Multiplying them by *Layers* is a ſhorter Way.

He recommends *July* as the only Seaſon of Laying this Plant with Succeſs, that being a little before the *Auguſt* Sap riſes; which he directs to do as follows: Slit the Part you deſign to lay in the Ground, at a Knot half Way into the Branch, and three or four Inches long, according to the Strength of it; and then cover the *Layer* with Earth, and water it, and ſo continue watering it, as Occaſion requires; and in about ſix Weeks Time it will have produc'd Fibres enough to be tranſplanted, or in *September* or *October*. He adviſes, to plant them either in Boxes or large Pots, and not in the open Ground, becauſe they cannot endure the Colds; and are to be defended from it in the Green-houſe.

He ſays, It is not to be prun'd as other Shrubs are, tho' it ſhould not grow as one would have it.

The Caſes of theſe Plants ought to be ſhifted every five or ſix Years; and the new ones are to be fill'd with two thirds of Kitchin-Garden Earth well ſifted, and one third of Mould mingled together; becauſe by that Time the Plant will have exhauſted the Salts of the old Earth.

16. OLIVES.

THE *Olive-Tree*, Mr. *Bradley* ſays, may be propagated by laying down the young Branches in the Earth in *March*. If they be planted againſt Walls expos'd to the Sun, they will thrive very well; and is hardy enough to endure our Climate without any Shelter. He ſays, he has ſeen perfect Fruit of the *Olive-Tree* in the Gardens at *Camden-houſe* at *Kenſington*; and in many other Places near *London*.

He ſays alſo, perhaps there may be as near a Relation between the *Olive* and the *Plum*, as there is between the *Cherry* and the *Cherry-Bay*, or common *Laurel*; which altho' their Bloſſoms are differently ſet upon their Trees, yet do bear a Reſemblance to one another in their Fruit.

For, altho' the *Olive* brings its Bloſſoms upon Strings, and the *Plum* after another Manner; yet the Shape of the Fruit of both are pretty near alike: And in like Manner, the *Laurel* or *Cherry-Bay* produces its Flowers in Spikes, but the *Cherry* in Cluſters; but yet their Fruit is both alike in Shape.

He adds, That as it is known the *Cherry* will grow on the *Laurel*, or the *Laurel* on the *Cherry*, if budded or graffed on each other, as he has ſeen; and as in his Opinion there is no great Difference between the *Plum* and the *Olive*, one may be budded or graffed upon the other with good Succeſs.

17. ONIONS.

Various Kinds.] MR. *Bradley* reckons two Sorts of *Onions*, as deſerving our Culture; the Spaniſh-*Onion*, which affords a large, ſweet taſted Root, and the other the Strasburg-*Onion*, which is more biting, and laſts good much longer than the former; which are both cultivated alike. Mr. *Mortimer* alſo ſpeaks of two Sorts of *Onions*, which he diſtinguiſhes by the Names of *red* and *white*, of which he ſays; the *white* are eſteemed the beſt, and adds, that the beſt *Onions* are ſuch as are brought out of *Spain*, from whence they at St. *Omer's* had them, and are called St. *Omer's* *Onions*, ſome of which he ſays, have weighed eight Pounds.

Way of Propagation.] *Onions* are multiplyed by *Seeds*, ſown either the Beginning of *March* or latter End of *February*, in a fine fat and warm Mould, if they are ſown before *March* they muſt be covered at the firſt; and when the Seed is ſown, and as equally diſperſed as may be, the Bed muſt be trod and beat flat; for they do not extend their Fibres far downwards. When they begin to ſpring, Mr. *Mortimer* adviſes, to ſift fine Earth almoſt a Finger thick over them; and when they begin to appear to tread them down, which will make the Roots grow the larger. He adds, that they have ſucceeded very well when ſown in Bay-Salt: They are uſually ripe in *Auguſt*, and are then to be taken up and dryed in the Sun, and kept in a dry Place for Uſe.

Mr. *Bradley* adviſes to ſow *Onion* Seed, in rich Garden-Soil in *March*, and to ſow the *Seed* pretty thick, that if it be not all good, and ſo do not come up, as it often happens, you may not be diſappointed of a tolerable Crop; and if they come up too thick they may be eaſily thinned. When they are grown fit for Sallets; about the latter End of *April*, they may be houghed with a very ſmall Hough, leaving about three Inches between every Plant. When the Leaves begin to change their Colour, the Roots will grow no more that Year, and therefore they may be pulled up in dry Weather, and be lay'd in Rows expoſed to the Sun, till they be throughly dried. When they are dried enough, let no Rain fall on them but carry them in a-doors, and ſpread them on a Floor to dry for Winter uſe, and ſome of them perhaps will keep good till *April.*

Thoſe which ſpire about the Beginning of *February* and have large Roots, plant in Lines about half a Foot a-part, and at two Inches Diſtance for *Seed*, to produce *Seeds* for another Year When they have ſhot out Stems about two Foot high, ſtake them up from being injured by the Winds; and as ſoon as the *Seed* Veſſels begin to open cut them off, and lay them on a Mat to ripen in the Sun, keeping them turned once a Day for two or three Weeks, and then you may beat them out of the Husks. Keep them dry, that the leaſt Moiſture may not get at them, for that will make them ſprout, and they will never be fit to ſow: For it is a certain Rule, that if any Seed have had moiſture enough to put forth its Radicle never ſo little, and is afterwards checked, before the Ear Leaves appear, it cannot by any Means be made to grow afterwards.

Mr. *Mortimer* ſays, the Seeds may be ſown all the Year for young *Onions* or *Scallions*; that ſuch as are ſown in *Autumn* muſt be covered with Straw or Peaſe Haulm, and being thus preſerved, during the Winter, they will in the Spring be early *Cibouls* and *Scallions*.

Mr. *Bradley* adviſes to ſow a *Crop of Onions* the Beginning of *Auguſt*, in ſome warm Place to ſtand the Winter, and to ſupply the Kitchen, when the dry'd *Onions* are ſpent; this ſowing will be fit to draw in *April.*

Mr. *Collins* ſays, that he has obſerved that Gardeners, who keep the Markets with early Salleting, have not young *Onions* among them; whereas they might be plentifully furniſh'd with them, if they did but ſow a ſmall Piece of Ground thick with the Seed about *Michaelmaſs*; for they having in their own Nature Spirit enough to reſiſt the Weather, would be of ſufficient Strength before they were attacked by it, to bear up againſt the Froſt and Snow.

Mr. *Bradley* ſays, the Ground commonly choſen for *Onions* is a generous *Loam*, which is ſuppoſed to conſiſt of equal Parts of Sand and Clay; and that notwithſtanding this Sort of Soil is more generally inclined to aſſiſt Vegetables than any other, yet ſome Perſons think that it requires a great Quantity of Manure or Dung to make it fit for the Vegetation of *Onions*. He finds by Experience, that Loam it ſelf, without the Charge of Dung, produces *Onions*, as large and as good as that Ground which is dunged.

That he found them to be ſo in Gardens where he was told by the People, that they had never made uſe of any Manure but what they had taken out of Ditches, and the drift Sand of Highways; and that he had in ſome Places ſeen *Onions* which were of a tolerable Size, and well taſted, that had been ſown upon a black Sort of Sand, that appeared to have been mix'd with about one third Part of fibrous Roots, like thoſe of Heath Roots; and does believe it was ſuch a Soil that had not been long encloſed. This Land, he was informed by the Perſons, had not been done any thing to, but digged up and ſown with *Onions*.

He adds, that he has had as good and large Roots of this Sort out of his own Garden, without making uſe of any Manure, as his next Neighbour, who had covered his Ground four Inches thick with Dung; and that he has ſeen an Acre or two of good *Onions*, growing near *Windſor*, in a Sand Field, where little Dung was uſed.

As to procuring the Seed.] He is of Opinion that when any *Onions* begin to ſprout, then it ſhews Nature is active, and then it deſires the Ground; and then they ſhould be planted immediately, in order to gather the Seed from them, eſpecially, if they be large Roots, and ſuch as promiſe Strength and Vigour, for from ſuch a healthful vigorous Offſpring may be expected.

It is certain, that when *Onions* do begin to ſprout, it is their Time of growing; and therefore the Earth is proper to further their Deſign; they do not ſprout all at the ſame Time, but ſome in *November*, ſome in *December*, and others not till *January*; *but whenever they* do begin to ſprout it is a ſign they require the Aſſiſtance of their natural Bed and Nouriſhment.

Time of ſowing.] Having taken care to be furniſhed with Seed from luſty, well fed Plants, he directs that it be ſown as ſoon as the Earth begins to reſume its Power of acting upon Vegetables of this Kind; he having had the beſt Succeſs by ſowing the *Onion* Seed in *February*, as ſoon as the Weather was open, and has made it his conſtant Rule never to ſow the Seeds of any bulbous Roots later in the Spring of the Year. He adds, that he finds that if he ſows any *Onion Seed* later than *February*, his Seeds are in Danger of being loſt in their tender State, either by Vermine, or a Changeableneſs of Weather, that is too rough for them, when they firſt peep out of the Ground, or elſe by the Seaſon being too dry, which is very frequent in *March*, and ſo the Seed comes not up at all.

Of the Culture] This is to be obſerved in the Management of a Crop of *Onions*, that they muſt be houghed when they are grown as big as a Crow-Quill, both to clear them of Weeds, and to give them a due Diſtance one from another.

The *Onions* being thus put into a thriving Method, they require but little more Care till their Roots have near done growing, and then the common Method is to bend down their Leaves with a Pole.

This is ſuppoſed to ſtop the Motion of the Sap, and by that Means to be beneficial to the Growth of the *Onions*; but tho' he has followed this Method, yet he cannot be poſitive of the Succeſs.

When the Pipes, or Leaves, of the *Onions* begin to loſe their juvenile, or youthful *green* Colour, and turn *yellowiſh*, then it is Time to take them out of the Ground, and to diſpoſe of them the beſt Way to dry: But it is not good to do it in rainy Weather. They ought to be well dried before they be laid up, or elſe they will not keep. Some have covered Sheds to dry them in, when the Rains have begun to fall; for the rainy Weather commonly begins about the Time for taking *Onions* up out of the Ground.

It is found by Experience, that when *Onions* have been laid up before they have been well dry'd, or have been laid too cloſe together, or in too large Heaps, they begin to ſprout ſooner than when the more watery Particles have been exhaled by the heat of the Sun.

The beſt of the *Onions* are to be clear'd and dry'd on Kilns, and by that Means become much more refined in their Flavour, and more gentle and ſweet in their Taſte, than thoſe that have not been dry'd; and ſuch are thoſe that are commonly ſold in Ropes; but as for thoſe that are uſually ſold by the Peck, they are not ſo dry'd. *Spaniſh Onions* are 'ry'd, and by that Means oſe their pepperiſh Taſte, and alſo that Spirit of Vegetation, which would otherwiſe cauſe them to grow before they are uſed in the Kitchen.

He is of Opinion, that there is no Root that would bring more Profit to the Planter, with ſmall Expence, than *Onions*, and ſays, he has known, in the Year 1714. leſs than an Acre of *Onions*, after they had been dried on a Kiln, to have been ſold for ſixty Pounds; but indeed it ſo happened that Year that by Reaſon of Froſts, in many Places, the Gardeners had not an Opportunity of ſowing their Seed till about the Middle or End of *March*, and ſome later; ſo that they were deſtroyed by the Fly as ſoon as they came out of the Ground.

But though this was an extraordinary Year, yet he finds that one Year with another, an Acre of *Onions* may be made worth upwards of forty Pounds.

Theſe Inſects, the Flies, do uſually appear about the Beginning of *April*, while they are in their moſt tender State, and that Perſon had ſown them ſooner than others, and though it did freeze afterwards, the Seed being ſheltered in the Earth began to prepare for Germination ſooner than others, that in *April*, when the Flies came, the young Plants, either becauſe they were ſheltered from Blaſts, or being in a vigorous State, were able to defend themſelves againſt the Fly.

18. SEA-ONIONS, *or* SQUILS.

THESE Plants are call'd, *Squills* of σκίλλω to dry up. becauſe they grow in dry Places The Bulb of this Plant is as large as that of a *Citron*; from the Bulb it ſhoots out ſeveral Leaves about a Foot long, of a beautiful *green*, and almoſt as big as one's Hand; from the middle of theſe Leaves ariſes a Stem about a Foot and half high, along which, from about a third Part upwards, it is adorn'd with Flowers like *Lilies*, of a *red* Colour conſiſting of 6 Leaves, of a round Form, in the middle of which grows a Chive, which becomes a roundiſh Fruit, divided into three Capſula's full of round Seed.

The Bulb of this Plant being cut in Pieces and ſet into the Ground, produces another large Bulb, which growing up, becomes a Supply for others, enough to multiply the Species; and ſo the Plant may be multiply'd *ad Infinitum*.

The Manner of Cultivating this Plant, is the ſame with that of the *Aſphodel*: Which ſee.

19. ORACH.

ORACH is multiply'd by *Seeds*.

20. ORANGE-TREES.

MR. *Mortimer* ſays, *Orange-Trees* were unknown in former Ages *to Europeans*, and *have not been long introduc'd*; and that more noble Kind, the *China-Orange*, has not been many Years propagated in *Portugal* and *Spain*, which now yearly furniſhes us ſo plentifully with thoſe Fruits; and that even in thoſe Countries they have within theſe few Years degenerated both as to Size and Taſte.

Mr. *Bradley* ſays, That the Situation and Climate natural to this beautiful Tree, being conſider'd, may be of Help to us, to judge of the Temper and Nature of the Air it requires. The firſt Groves of them that we meet with, growing wild in *Europe*, were at *Eres*, near *Thoulon* in *France*, between forty two and forty three Degrees Latitude, and about *St. Remo* and the *Riviera* of *Genoa*, in the ſame Latitude, near the Sea, at the Foot of very high Mountains to the *North* of them; and the firſt Woods of them growing in *Italy*, are as far *South* as *Gaietta*; and ſo agreeable is the Air of the Sea to them, that in many Places more remote from the Sea than *Thoulon* and *Gaietta*, altho' farther *South*, they cannot be made to thrive without Shelter in *Winter*.

Various Kinds.] He ſays, That of *Orange* and *Lemon-Trees* there is a conſiderable Variety; but he ſhall only treat of ſome few which are the moſt common in our *Engliſh* Gardens; of which he eſteems the *Sevil-Orange* the beſt, as well for the Beauty of its Leaves, as the Goodneſs of its Fruit, which will come to Maturity with us. The *China-Orange*, he ſays, never makes a handſome Tree, but is always inclining to look ſickly, and ſeldom bears Fruit in Perfection. The curl'd *Genoa-Orange* is, indeed, pleaſanter to look upon, but is a very ſlow Grower; and he approves of the ſtrip'd *Genoa*, for the beautiful Variegation of its Leaves, as worthy to be introduc'd into Gardens, as a Rarity; but as for the Fruit of that Kind, he has never yet ſeen it fit for any Uſe.

Monſ. *Liger* ſays, the Raiſing *Orange-Trees* from the *Kernel*, *Slip* or otherwiſe, is a Method too ſlow in theſe temperate Climates, and the Iſſue very uncertain; and therefore he chiefly treats of the Cultivation of ſuch as are brought to us from *Genoa*, and Foreign Parts.

The Way to know good Orange-Trees.] Thoſe *Orange-Trees* that are brought over to us, come either with the Earth about them, or without it; in the firſt, Monſ. *Liger* ſays, we can't well be deceiv'd, for ſeveral Branches with Leaves are left upon them, which by handling them gently we may diſcover, whether they are good or bad, by the more or leſs Firmneſs we feel in them; for the firmer and brittler the Leaves are, the more ſound and thriving we may conclude the Trees to be.

As to thoſe *Orange-Trees* that are brought over with bare Roots, and no Earth about them, they are no better than a ſort of Sticks; and no Judgment can be made of them, but by the Goodneſs of their Bark: For, if *the Bark be firm*, and by making *a Inciſion in it*, it quit the Wood, it is a Sign that the Tree is ſound; but if it ſtick to it, it is an infallible Sign that the Tree is not ſound.

If after you have made the Inciſion, you find the Wood moiſt with the nouriſhing Juice, it is a good Sign; but if dry, it is an ill one.

The Bark ought to be of a *yellowiſh*, and not a *blackiſh green*, for the *Blackneſs* proceeds from the Inactivity of the Sap, or from having been too often watered in the Voyage.

Mr. *Bradley* ſays, The moſt proper Seaſon for bringing *Orange-Trees* into *England*, is the Beginning of *February*; ſo that there may be at leaſt a Fortnight in that Month to prepare them for Growth, that their Shoots may be ſtrong and vigorous the *Summer* ſucceeding.

How to manage them after they come from Foreign Parts.] He ſays, When they come to us from Abroad, they have very little Root, and leſs Branches; and having during their Voyage by Sea, in that Condition been laid up in dry Boxes for ſome Time, they require a good deal of Care to recover them from their Lethargy. He therefore adviſes, That as ſoon as we receive them, we lay them up in ſome large Room, and in wet *Moſs*, that in the Day-time they may have as much Air from Abroad as may be, (provided the Air be not too ſharp) and to turn them once in twelve Hours. The managing them thus for a Week will recover their ſhrunk Veſſels, and ſwell their Bark:

And beſides this, he adviſes, to re-examine their Roots, and to cut off their dead and wounded Parts with a ſharp Knife; and if they have any Earth about them to take as little as may be away; and alſo to prune off the Tops that remain on them, leaving only ſuch Shoots as are vigorous, about three or four Inches long; and to plaiſter all their Wounds cloſely, with ſoft *Wax*: And having done this, to lay their Roots in River or Pond Water, for about Twelve Hours; then to take them out, and ſet them to drain for about Half an Hour before they are planted.

Mr. *Bradley*, in a Letter to Mr. *R. S.* concerning the ordering of *Orange-Trees* ſent from *Genoa*, directs as follows:

That when they firſt come from on Board the Ship, they ſhould be immediately taken out, for fear of their getting the Muſt or Mouldineſs, which may be very injurious to them; and if the green Shoots of the Heads of the Trees are any Ways dry'd, to lay the Trees upon moiſt Ground, where a moiſt Vapour conſtantly flowing, they will recover and fill themſelves, ſo as to become fit for Vegetation: But when their Shoots are dry, and by Way of Recovery they are plung'd into Water, as the common Practice is, they are over-burthen'd with watery Parts. And altho' this Management may make them appear healthful for a Month or two, yet it generally ends in Sickneſs; for that this ſudden Refreſhment only ſatisfies them for a little Time; whereas the gentle Refreſhings of the Vapour, which gradually fills their Parts, will aſſiſt their Health.

But ſuppoſing the Trees to be in as healthful a State as any that come from Abroad, he adviſes, to let both their Stem, Roots and Branches partake of the Moiſture or Vapour of the Earth two or three Days, before they are plung'd in Water, and then to lie in a River or Pond an Hour or two and no more. And afterwards to prune off only ſuch Roots and Shoots as are either dead or wounded; and to lay on ſome ſoft *Wax*, or other ſuch ſoft Plaiſter, on every Wound, both in Root or Shoot, that the Circulation of the Sap may not be interrupted; but by no Means to cut off any of the live Roots or Wood, for that will contribute to make the Tree ſhoot weak and ſickly.

He adds, That he has always planted thoſe Trees which he had from Abroad, with their Shoots on as they came over, tho' it was not according to the common Practice; and that in three Years Time they have made extraordinary Heads, far exceeding thoſe that were cut: But then he prun'd off ſuch of their Shoots as grew diſorderly, the ſecond Year of their Growth; for by that Time the Trees had got Strength, and were more able to bear Wounding, than in their firſt ſickly Year.

Monſ. *Liger* directs, That if the *Orange-Trees* have no Earth about their Roots, to waſh the Roots well, to prune the Extremities of them, eſpecially of thoſe that appear to be bruiſed, you muſt cut to the Quick ; and take off the Fibres that ſeem unſound ; lop the Branches to two or three Inches, and ſteep them in Water for half a Day, and then plant them. As for thoſe that have Earth about their Roots, take away ſome of the Earth, pick out the Gravel from that which remains, and pare the Roots.

The Stocks having been prepar'd as directed, and the Earth as directed hereafter ; the Directions for Planting them are as follows :

Mr. *Mortimer* adviſes, before you put your Earth into the Caſes, to lay on the Bottom a good Quantity of *Oſier*, or *Withy Sticks*, or ſuch-like which will make it light ; and if they are in a ſmall Quantity mix'd throughout, it will be better.

Mr. *Bradley* adviſes, That the Pots for theſe Stocks be juſt big enough to admit two Inches thick of the Earth he directs on every Side of their Roots, and no more, leſt the Warmth of the Hot-bed they are to be ſet into ſhould not have Strength enough to reach them, and make them ſtrike, becauſe the Hot-bed muſt be very moderate and gentle, for Fear it ſhould ſcorch the Roots ; and then it will be to little Purpoſe to attempt to recover the Plants.

Monſ. *Liger* adviſes, To lay ſome *Oyſter-ſhells* or *Potſherds* at the Bottom of the Tubs, that the Water may the better drain away ; to fill the Tub or Pot with the Earth he has directed, and to preſs it down with your Hand, leſt it afterwards ſhould have too great a Fall, and the *Orange-Tree* ſhould ſink too deep ; then the Pot or Tub being fill'd to the Brim, to make a deep Hole in Proportion to the Height you deſign your *Orange-Tree* ; to put it in, and ſet the Roots in right Order, and to be ſure to let it be four Inches deep, in ſuch a Manner however, that the largeſt may always appear ; Cover it, and then water it, which will bind the Earth the faſter to it, and very much contribute to its taking Root. Then carry it into ſome freſh Place, airy, but where the Sun does not ſhine. The Times of Planting, he ſays, are either the latter End of *April*, *May*, or *October*.

Mr. *Bradley* directs, That the Stocks being planted in Pots ſhould be ſet upon a Hot-bed, prepar'd as he has directed. See *Hot-bed*. When the great Heat is paſt, after the whole Surface of the Bed has been cover'd with Mould, to prevent the Steam of the Dung from riſing and annoying the Plants.

This *Hot-bed*, he ſays, ought to be made under a warm Wall, and ſhelter'd from the cold Air with Glaſs on their Sides, and on the Top : That the Plants, being thus prepar'd for Growth, ought to be water'd moderately once a Week 'till *April* ; and after that, if the Weather be warm, every third Day. And their Tops muſt be ſhaded with Mats at all ſuch Times as the

Sun ſhines warm upon them, leſt the Under-Shoots which begin to put forth, be ſcorch'd, and by that Means periſh.

Mr. *Carpenter* directs as follows: Your *Orange Trees* being thus planted, place them on a Platform, broad enough to contain two Rows of Plants in Baſkets or Pots, one beſide the other. Make this Platform of cold and hot Dung mix'd together in the Manner of a Hot-bed, then cover it over with an Awning of Baſs-mats, born up with Poſts and Poles. This Awning will not only ſerve to skreen the *Orange-Trees* from the Sun and Winds, but will maintain a gloomy Heat, which will be very advantageous to them. After this, ſprinkle them once a Day with Water, to keep them wet.

Mr. *Bradley* directs, That in *May*, when their Shoots begin to ſhew their Vigour, to give them Air by Degrees, by opening the Glaſſes toward the ſetting of the Sun, if the Evenings are not too cold; which, he ſays, if done with Judgment, will contribute very much to ſtrengthen them, and make them ſhoot forth *green* and healthy.

During the Courſe of their firſt Shooting, he would have them ſhifted once in ſix Weeks at leaſt, into freſh Hot-beds; but as ſoon as *June* is over, he does not adviſe to force them any more; but rather by ſetting them in ſome Place ſhaded from the Sun, to endeavour to prevent them from putting out a ſecond Shoot, by expoſing them at large to the open Air, there to let them ſtand 'till the firſt Week in *September*, and to carry them into the Green-houſe; and at that Time to take away carefully, without diſturbing the Roots, three or four Inches of the Earth on the Top of their Pots, and to put as much freſh Earth in its Place.

When they are in the Green-houſe, Mr. *Bradley* ſays, they ought to have as much Air as can poſſibly be allow'd Night and Day, 'till the latter End of *October*; nor ſhould the Windows be at all ſhut, unleſs it happen that the Winds or Froſts are very ſevere; and during the following *Winter* Months, no Opportunity ſhould be omitted of opening the Houſe when the Weather is moderate.

Altho' theſe Trees love the Shade, yet he ſays they will quickly periſh if they have much Water; but yet they muſt be frequently refreſh'd with it, a little at a Time, for too much Wet about their Roots will chill or rot them. He recommends Water for them in which *Sheep* or *Deers* Dung has been ſteep'd, as that which will contribute very much to make them healthy. Mr. *Mortimer* ſays, *Sheep* or *Neats* Dung.

Monſ. *Liger* ſays, When you ſet them into the Green-houſe, you ſhould give them a very good Watering, which muſt ſerve for all the *Winter*.

Mr. *Bradley* ſays, Violent and haſty Waterings will make the Leaves turn yellow, and often drop off, and alſo make them remain for a Year or two in a languiſhing Condition, without putting forth any Shoots, and at length entirely go off.

Theſe young *Orange-Trees* being by this Management maintain'd in good Health, 'till the latter End of *February*; he directs to renew the Earth about them, as was done in *Autumn*; and to train the Heads of them, leaving about ſix Inches of the Shoots of the foregoing *Summer*, if they be ſtrong, but as they are weak, in Proportion accordingly; to plaiſter the Wounds with ſoft Wax; after which, being carefully perform'd, they will ſoon begin to ſprout, and make good Shoots the ſucceeding *Summer*; being with Diſcretion inur'd to the external Air, before they are ſet out of the Houſe.

That the Time he has obſerv'd for bringing *Orange-Trees* out of the *Green-houſe*, is at the Time of the New-Moon in *May*, which he has obſerv'd commonly to bring gentle Showers, and warm Weather. And has had but little Regard to thoſe Rules that have been commonly obſerv'd to bring them out either at *Mid-may*, eſpecially if moderate Rains fall at that Time, or when the Leaf of the *Mulberry-Tree* is as big as a Crow's-Foot, which perhaps may be a certain Sign of the Temperature of the Air.

As to the Station of *Orange-Trees* in *Summer-Time*, he adviſes, that it be in ſome ſhady Place, either fenced in with *Hedges, either of Dutch Elm, Holly, Hornbeam,* or *Ever-green Oaks*, about twelve or fifteen Foot high, or elſe in ſome clear Place in a Wilderneſs or Wood; for that this Plant delights exceedingly in ſuch Shelter.

Theſe Plants being thus order'd, and the Pots being chang'd as the Roots increaſe in Bigneſs, he ſays, we may expect handſome Trees in three Years from their firſt Planting. When the Pots or Caſes are chang'd, he adviſes, that it be done in *February*: And that in replanting them Care be taken, that the Trees be planted ſo ſhallow in their Pots or Caſes, that none of the Stem be ſet below the Earth, but rather that ſome of the large Roots joining to the Stem be ſeen above it; and alſo that the Pots be not too large, becauſe if ſo, the Roots would chill, by having too much Moiſture about them.

Monſ. *Liger* ſays, That thoſe Pots or Tubs in which *Orange-Trees* are ſet, are to be proportion'd to the Size of the Trees; ſo that thoſe they are planted in the firſt Time ought to be a Foot and half over on every Side, without including their Feet.

He adds, That *Orange-Trees* continue in their firſt Caſes for five or ſix Years before they are cas'd anew: But if there be any Defect perceiv'd in them before this Time, either by the Leaves withering and looking pale, or the Flowers being ſmall, or the Shoots growing crooked, or if they do not ſhoot out in the *Spring*, tho' their Leaves be *green*, then they muſt be new caſed in the Manner following:

If it be a ſmall Tree, that is to be remov'd from one Caſe to another, you muſt with your diſplanting Grove take away as much of the Earth as you can, and then lift it up out of its Caſe with the Earth about it; and holding the Tree in your Left Hand, with your Right Hand pare off with a Pruning-Knife, two Thirds of the Earth, and prune the Fibres and moppy Roots 'till you come to the larger; then having another Pot or Caſe fill'd with Earth, firſt ſteep the Earth about the Root in Water, letting it imbibe 'till the Water has left off Bubbling; then having taken it out and drain'd it, ſet it in the Middle of the Hole that you have made for it; but not ſo low but the larger Part of the Root may be ſeen; then put the Earth upon it, and preſs it down with your Hand; and afterwards having watered it, ſet it into its Place.

As for thoſe Trees that cannot be manag'd with the Hand, ſome make Uſe of a Pully faſten'd to ſomething above, round which is a Cord with one End faſten'd to the Tree, by which they draw the *Orange-Tree* out of the Caſe. And when they are very large, they heave them out with a Crane, as may be ſeen at *Verſailles*: And when they are taken out, as ſoon as the Air comes to them, cut off two Thirds Earth and ſuperfluous Roots together; and becauſe they are not eaſy to be ſteep'd in Water, they make Holes all about the Roots, and pour Water into them, and ſo let them hang 'till all is ſoak'd in; and then they are to be put into the freſh Caſes. As for the Time of doing this, ſome recommend *September* and *October* as the fitteſt Seaſon; others again the latter End of *April* or Beginning of *May*: But the moſt proper Time with us in *England*, Mr. *Carpenter* ſays, is *April*.

Monſ. *Liger* alſo mentions a Half-Caſing of *Orange-Trees*, which is to be done at the End of three or four Years only, and after the Manner following: Dig up the Earth, that is in your Caſe, with an Iron Dibble; take it away as you dig it, and leave the Roots as bare as you can; then fill up the Caſe again with prepar'd Earth, beat it down a little, and water it with Judgment.

Mr. *Carpenter* ſays, That at *Verſailles* there are *Orange-Trees* in Caſes above a Yard Square, which are made to take down on all the four Sides, in order to pare off the hard, cruſty reticulated Roots; which being done, they ſquirt Water with an Engine into the moppy Roots to moiſten them; after which, they ſhut up the four Sides again, and fill up the Hollowneſs of the Caſe with freſh Earth, and then give the Trees a good Watering.

Mr. *Bradley* ſays, *Orange-Trees* planted and manag'd as he has directed, will, the third *Summer* after Planting, begin to bloſſom; and if they are healthy will ſet Fruit, which will be about the Bigneſs of a Muſquet-Ball, when they are ſet into the Houſe, and will ripen the *Summer* following.

He tells us, That the late King of *France*, *Lewis* XIII, was ſo great an Admirer of the *Orange-Tree*, that he had Rows of them continually flowering in a Gallery of the *Louvre*, which were plac'd upon Pedeſtals with Caſes of emboſs'd Silver over their Pots.

That the Manner of bringing the Trees to bloſſom at every Seaſon, was as follows: The Gardeners firſt chooſe a ſufficient Number of Trees for their Uſe; thoſe they let remain without Water 'till the Leaves drop'd off; and then give them freſh Water on the Tops of their Pots, and frequent Waterings in a Glaſs-Caſe; and ſo they came out full of Flowers and freſh Leaves, fit for the Place they were to ſtand in; and theſe they renewed every Month in the Year: And the like, he ſays, was done in the Palace of the Prince *di Burgeſi* at *Rome*.

Notwithſtanding Monſ. *Liger* ſays, The Raiſing of *Orange-Trees* by *Kernel*, *Slip*, or otherwiſe, is a Method too ſlow in theſe temperate Climates; and therefore gives no Inſtructions for it: Yet Mr. *Carpenter* ſays, We in *England* do raiſe ſeveral fine Plants from *Seeds*, and bud them afterwards; and theſe Plants when they are in Flower, are very proper and agreeable in the Lodgings of Perſons of Quality. And Mr. *Bradley* ſays, That he has found by Experience, that the *Orange-Trees* rais'd in *England* from *Kernels*, are both more hardy, and will bear Fruit *more Certainty*, with leſs *ble*, and in far greater Quantities, than thoſe that are brought from foreign Parts.

Altho' the Fruit does not ripen with us ſo well as in *Portugal* and *Spain*; yet they ſerve for many Phyſical Uſes; and the Flowers here are more valuable than the Fruit.

Mr. *Bradley* gives the following Account of Sowing and Cultivating of them:

In *February*, he ſays, he prepares a Hot-bed; and as ſoon as the burning Heat is over, having ſown the *Seeds* of *Oranges* or *Lemons* in Pots fill'd with dry, light Earth, about an Inch deep, he ſets the Pots into thoſe Hot-beds, where having ſtood about ten Days, they will appear above the Earth; and gives them but a little Water before they come up, leſt it ſhould rot the *Seeds*: For he ſays, when the *Seeds* are taken freſh from the Fruit, the outward Membranes, which incloſe the *Seeds*, are always cover'd with a kind of *Mucilage*, which will remain moiſt for ſeveral Days, and will be ſufficient with a ſmall Heat to make the *Seeds* ſprout.

In Proof of this, he relates an Experiment of Mr. *Anthony van Leuwenhoke*, who ſays, That in *November* he took a little Copper-box, and having put ſome ſcouring Sand into it, which Sand was dry, and he having taken ſome *Seeds* out of an *Orange*, put them freſh into the Sand, which was ſomething moiſtened by the *Seeds*; and this Box he carried about with him in his Watch-Pocket, cloſe ſhut up in the Day-time, and put it in a Veſſel of warm Water at Night, by that Means keeping the Box conſtantly warm. That having done this 'till the ſixth Day, he open'd it, and found that the *Seeds* had already put forth Roots, near half an Inch long; and as he review'd them from Time to Time, found them increaſe, and put out Branches.

Theſe *Seeds*, he ſays, will riſe four Inches high at leaſt, during the Warmth of the firſt Hot-bed; and he adviſes to ſhift the Pots into freſh Beds every five or ſix Weeks, 'till *Auguſt*; and then to begin to harden them for the *Winter*. He alſo adviſes, to defend theſe young Plants from the hot Summer's Sun; and to give them Air only Mornings and Evenings.

The *February* following, theſe Plants are to be tranſplanted into ſmall Pots, and put again into a Hot-bed, 'till the Seaſon is warm enough to ſet them Abroad; and in *July*, ſome of them will be fit to inoculate, and the reſt to inarch the *May* following.

But he rather adviſes the ſowing of *Lemons*, or *Citron* Seeds, than thoſe of *Oranges*, becauſe that ſince neither of them will bear Fruit before they are either grafted or inoculated, and the *Lemon* Stocks being of a quicker Growth and hardy Conſtitution, and will as well receive the Buds of *Oranges* as *Lemons*, he prefers them before the other: He ſays, he has ſeen *Lemon* Plants rais'd after this Manner, that have been near three Foot *high the firſt Year*; for growing together in little Groves, each Plant has a particular Emulation to over top the reſt.

He recommends the tenth of *July* as the moſt proper Seaſon for budding theſe Trees; for at that Time the Buds will readily grow; and all the wild Twigs being cut off above the Buds, and the Wounds covered with ſoft Wax, you may before Winter, if they have had the Help of a *Hot-Bed*, expect to have a good bearing Shoot of, at leaſt, a Foot long; and if they are well looked after, and not over-potted, they will begin to bear Fruit two Years after.

But he ſays inarching them is a more expeditious Way to make them bear both Flower and Fruit, which being done in *May*, they may be cut off the *Auguſt* following; and according as you have made Choice of bearing Boughs to inlay into the wild ſtocks, will then have Fruit upon them either green or ripe.

He ſays, that he has heard of Trees, that by this Management have had Fruit upon them in leſs than two Years from the Time of ſowing their Seeds; and he himſelf, by this Method, has rais'd an *Orange* Tree, that had Fruit and Flowers upon it when it was not ſix Inches high.

As to ſome Particulars relating to the preſerving them from Froſts and Damps in the Winter, he recommends to what he has ſaid as to the Green-houſes.

The ſame Author in the Treatiſe for the Month of *Auguſt* preſents us with a Letter from Mr. *Robert Heſlop*, to himſelf, whereas he informs him, that he had rais'd Seed of *Oranges* and *Lemons*, in a hot Bed, but very late, (he thinks he began in *June*) that he anointed ſome of them with Soap-Water, and the Effect was, that the ſoaped Seed came up firſt, and the *Lemon* Seeds, he thinks, a Week, at leaſt, before thoſe unſoaped, or the *Orange*; toward the Middle or latter End of *Auguſt*, they had about four or five Leaves, beſides the Seed Leaves, upon which he grafted ſome of them upon the tender Cyons of an *Orange* Tree, in the Method Mr. *Bradley* mentioned Mr. *Curteſs* uſed. That his grafting Wax was only Bees Wax brought to a Conſiſtence with Turpentine; but they all failed him, whether by over-tying with the *Jerſey*, or the Turpentine was too hot, he does not determine.

As to the Management of *Orange* Trees, when they are in their Caſes, Monſ *Liger* gives the following Directions.

That they ſhould be well dug; that by ſtirring the Earth the Salts contained in it may be better diſpoſed to Action, and ſo incorporating with the Plants, will ſhoot forth the finer Sprigs; that this digging ſhould be every Month from the Beginning of *April* to the Beginning of *October*, which is to be done with an Iron Dibble, or Pick Ax, in rainy Weather, great Care being taken not to hurt the Roots.

That they muſt be watered with Diſcretion: That you may perceive when an *Orange* Tree dry by handling its Leaves; for if they feel ſoft, and you can fold them without cracking, then they want watering: But then as the Softneſs and Pliantneſs is not always a Sign of Drought, but ſometimes of a Decay; therefore you muſt conſider whether the Earth about the Root be dry, and the Weather extremely hot, then you may judge it proceeds from want of Water.

He adviſes, to begin to water *Orange* Trees often in *May*, and to leave it off at the End of *Auguſt*, and not to water them after that Time above once in ten Days, till you ſet them into the Green-Houſe, when you are to give them one good watering to ſerve them all the Winter. He adds, that ſome water them in *April*, while they are in the Green-Houſe; but if this be done, it ought to be done very ſparingly, and that not above once a Fortnight.

Mr. *Carpenter* ſays, that *Orange Trees* planted in Pots, Tubs or Caſes, are often very much injured in *England*, by being too wet at Bottom, by the great Gluts of Rain that fall in *September*, which cauſes the Roots of the Trees to be in a periſhing Condition before the *January* or *February* following, by the Gardener's neglecting to lay the Trees down ſloping, to ſhoot off the overmuch Water. This Injury they have received, he ſays, may be diſcovered by the Leaves changing from a Verdure to a pale Straw coloured yellow, and by the falling off of the young Fruits which were ſet in the Months of *July* and *Auguſt* before. He ſays the ſame alſo ſometimes proceeds from overmuch watering them in *Autumn*, and the Holes at the Bottom of the Pots, *&c.* being ſtopped, ſo that the Water cannot ſtream through the reticulated moppy Roots and Fibres.

Orange-Trees, as well as other Fruit Trees, want pruning, which Monſ. *Liger* directs to do as follows.

To form it, as much as can be, into the Shape of the Head of a Muſhroom, leaving the Inſide of the Tree full, contrary to that of a Pear-Tree.

If an *Orange-Tree* ſhoot out more on one Side than the other, then you muſt cut off the talleſt Branches, as you think it moſt convenient for the leaſt.

If it has ſhot forth a great many Branches, ſome of which overtop the others, then prune the talleſt a great deal more in proportion than the ſhorter.

All Boughs, that hang down and ſpread wide, ought to be clipped; all dead Wood ought to be cut off to the Quick, and all broken Sprigs in the ſame Manner, even thoſe that bear Fruit, all the Prickles and little Ends muſt be taken away.

The Time of pruning them, he ſays, is in *October*.

If an *Orange-Tree* ſpreads its ſelf more on one Side than the other, you muſt reduce that Side, which ſhoots out moſt, to an equal Length with the other.

If it terminates in a Point, you muſt artfully cut off all that ſhoots too high, ſo that from a Figure almoſt like a Pyramid, it may grow to a round one.

When you are about to put an *Orange-Tree*, that is diſeas'd, into a freſh Caſe, then cut off the Extremity of thoſe Boughs that are moſt affected, that its Head may be proportioned to the Vigour of its Foot, and the Subſtance it draws from it.

Spare not the tender Boughs of an *Orange-Tree*, and always ſhorten the old ones, from whence new have ſhot forth; cover the Wounds of the great Branches, when you have prun'd them with a Sort of Wax, prepared for that Purpoſe.

Orange-Trees muſt be alſo diſbudded, and the Time of doing it is in the Month of *June*, when they ſhoot.

To disbud them is to take away the Branches that are ill placed, which have newly ſhot forth, and to cut off the Ends of Boughs that were prun'd in the Spring, which inſtead of ſhooting forth others, have only produced a little Tuft of ſmall Leaves in Diſorder. Theſe you muſt be ſure to take off, that the Sap may afterwards the better perform its Part; and that Bugs do not harbour there as is common.

Monſ. *Liger* ſays, that it is well known, that the Sap finiſhes its firſt Action towards *Auguſt*, and that then it immediately begins its ſecond; during which it is neceſſary to diſbud again, eſpecially as to thoſe Boughs which grow out in the End of that Month, or in *September*, and not having Time to come to Perfection, are good for nothing but to be cut off, not only the laſt Years Boughs, and thoſe that have been prun'd, are to be disbudded, but you muſt alſo disbud ſuch as have been newly grown, that theſe that are left may ſhoot forth the better. They are not to be ſpared for the Multiplicity of their Bloſſoms; for by nipping off every Thing that is ſuperfluous you will make what you leave the handſomer, and the Trees will be the more beautiful.

He adds, that the *Orange-Tree* has a particular Advantage above other Fruit Trees, that it bloſſoms twice a Year, whereas others blow but once. The firſt Bloſſoms appear in the Spring, and of conſequence, upon the laſt Years Wood; and the ſecond always grow on the Top of the Branches that are newly out.

The firſt Bloſſoms are round and ſmall, becauſe they are produced by Sap, which is not intirely rectified for want of Heat.

The latter are large, beautiful, long and well conditioned, becauſe the Subſtance by which they were nouriſhed, was ſtrong and vigorous.

Mr. *Carpenter* ſays, in *England*, thoſe Bloſſoms that put forth in any other Months than thoſe proper for their blowing, which with us are *June* and *July*, are ſuppoſed to proceed from ſome Defect in the Tree, eſpecially if they blow in *September*, when they are ſet in the Green-Houſe; yet ſuch Trees are of uſe.

As if we would force a Tree to have Bloſſoms very early, as in *December* or *January*, then a Month before we deſign to make uſe of ſuch a Tree, we force it on to flowering in a Glaſs Stove, and when it is in bloſſom, ſet it into any Apartment in the Houſe during the Time of its blooming: But then ſuch a Tree will be of no further uſe afterwards, for a Year or two.

Monſ. *Liger* ſays, if a Tree be full of Bloſſoms, it is as neceſſary to disburthen it of them, as to prune off the ſuperabundant Wood, eſpecially thoſe Bloſſoms that come firſt out; for there will always more come out, than the Tree can bear, and then the Fruit will be the better fed; you muſt not leave two Bloſſoms at the End of a Bough that ought to bear Fruit; alſo the Blowers muſt be gathered as they blow, that the Tree may not ſpend it ſelf too much.

Whereas the general Practice of planting *Orange-Trees* is to do it in Pots, or Caſes, that they may be removed into a Green-Houſe.

Mr. *Mortimer* ſays, they may be planted againſt a little Wall, where they muſt be well defended on all Sides againſt the cold Winds, and the Top well ſecured from Rain; and againſt ſuch a Wall they may ſtand without removing; only in the

Spring the Sun and Air muſt be let in to them by Degrees, till they are left quite open, ſo as to have only the main Stay ſtanding till the next Winter. He adds alſo that Cavities may be contrived in the building of the Wall, through which the Heat of Fire made in ſeveral Places may paſs behind the Trees; or other Fires may be made in a Sort of Shed as in a GreenHouſe.

He ſays, he knows a Gentleman who every Year makes a Shed, or Houſe over his *Orange-Tree*; and as the Tree grows bigger, he enlarges his Houſe, and his Trees are very large and bear very well.

Mr. *Bradley*, ſpeaking of the planting *Orange-Trees* in the natural Ground, inſtances the Gardens of Sir *Nicholas Carew*, at *Beddington* in *Surrey*, where Trees now growing in the natural Ground always bear Fruit in great plenty, and to extraordinary Perfection.

This Method he approves, becauſe ſuch Trees are not ſubject to the Inconveniencies that thoſe Trees are which are cultivated in Tubs, Pots or Caſes; which are not only liable to frequent Occaſions of being ſhifted, and of the Roots being chilled, but ſometimes having too much Water, and other times wanting it, while thoſe that are planted in the natural Ground are free in Growth, and do not loſe their Vigour by being ſhifted, nor are in any Danger but from the froſt, which they may as well *be guarded againſt* as in a *Green-Houſe*.

He ſays, that he there obſerved, that the *Orange-Trees* grow on the *South* Side of a Wall, not nail'd againſt it, but at full Liberty to ſpread, and that the Gardener informed him they were growing there in the Time of Queen *Elizabeth*, and were long before that planted in that Place in the natural Ground. The largeſt of theſe Trees, he ſays, within ſix Inches of the Ground, was about ten Inches Diameter; and that it was larger in its Stem than that at *Verſailles* in *France*: And whereas that in *France* was in a large Caſe, this was in the open Ground; and when that in *France* was hous'd in *October* it had no Fruit upon it, but this at *Beddington* brings large well grown Fruit.

And that in the Year 1719, there were *Orange-Trees* that three Years before had been tranſplanted from Pots into the Natural Ground, which were grown three Times as much as he had ever ſeen any Tree that had grown in a Pot or Caſe in that Time.

That the Conſervatory for thoſe Plants in the *Winter*, is a Frame that may be taken to Pieces, and as he ſuppoſes is quite taken away in the *Summer*, and put together again in the Beginning of *Winter*, which Method he commends, as being attended with ſeveral Conveniences.

He adds, That if we would cultivate *Orange-Trees* in the Natural Ground, they may as well be planted in Walks or

Parterres, as any other, by only providing Coverings for them of Thatch, and four Pannels of double Straw Mattraſſes, or ſuch Materials, to be fix'd to a Frame, as may keep their Roots and Shoots from the Froſt, in *Winter*; and that ſuch Sorts of Coverings or Shelters are us'd in ſome Parts of *Italy* and *France*, where the Froſts are more ſevere for the Time they laſt, than they are in *England*; only opening them now and then, when the Sun ſhines, and when there is no Danger of the Froſts hurting their Roots.

He adds, That an *Orange-Tree* will certainly do well, if we do but keep it from the Froſt; and it is not to be fear'd, that Trees planted in the Natural Ground will ſo ſoon feel the Froſt, as thoſe in Tubs and Caſes.

He likewiſe gives another Inſtance of the Advantage of Planting *Orange-Trees* in the open Ground, by a Perſon who meeting with a Parcel of languiſhing *Orange-Trees*, which were thought to be of no Value, which he recover'd, by firſt preſcribing a Glaſs-caſe well expos'd, in which he directed a Hot-bed of Tanners Bark, and having waſh'd and examin'd their Roots, and laid them in Water for ſome Time, planted them in Baskets of proper Earth, and fill'd up the Diviſions between them with the ſame Soil; the Conſequence of which was, the Trees for the moſt Part made *Shoots of two Foot*, and ſome *near three Foot* the ſame *Summer, and produc'd* Bloſſoms.

Monſ. *Liger* ſays, That beſides the Decaying that *Orange-Trees* are liable to, there are other Caſualties; as, they are ſubject to be eaten up with *Bugs*, which when they have had Time to breed and multiply on *Orange-Trees*, there is no Hopes of ridding them of them, but by ſtripping off all their Leaves, and rubbing their Branches clean with a Cloth: But before they are grown ſo numerous, he adviſes to rub them off with a Bruſh, or elſe to ſcrape them off with the Nails of your Finger; which is the beſt Way.

Mr. *Mortimer* ſays, You muſt carefully bruſh the *Spider-Webs* off your *Orange-Trees*; for they delight to work on them, becauſe their fragrant Bloſſoms attract the Flies.

Orange-Trees are alſo infeſted by *Emmets*; to deſtroy which, Mr. *Carpenter* adviſes, to have two ſemicircular earthen Troughs, which are to be plac'd round the Stem of each Tree; and then join'd together with a Cement; then to fill up the hollow of the Circle with a prepar'd Loam, made up into a Conſiſtence like Dough, and to ſtick a little green *Moſs* on the Top of the Dough, to keep it from Cracking by the Heat of the Sun; and thus to prevent the *Emmets* from the Root of the Tree, from creeping up the Stem of it; and when this is done, to fill up the Trough with Water.

What has been ſaid concerning *Orange-Trees*, will ſerve alſo for *Lemons*; the Nature of theſe two Trees being the ſame, they require the ſame Method in the Management of them.

Wax for Orange-Trees.] Take the neweſt *yellow Wax* you can get; put it into an earthen Pot, mingle it with ſome Oil of *Olives*, about two Thirds as much in Weight as the *Wax*; melt it together, ſtir it well about, pour it out hot into a Pan of Water; and when it is come to a hard Conſiſtence, lay it by for Uſe.

Mr. *Bradley* ſays, Mr. *Fairchild* at *Hoxton*, by a peculiar Method he has, has now ſome Hundreds of little *Orange* and *Lemon-Trees* with Fruit upon them as large as any that is brought from Abroad.

Dr. *Agricola* gives us the following Account of the Method uſ'd by a Gardener, in Inarching an *Orange-Tree:* He plac'd a wild *Orange-Stock* near a fruitful Tree; and after having pick'd out a ſound Branch of each, he cut a little of the *Bark* and *Wood* from each of them, about two or three Inches in length, in the Place where they were to embrace or be joined together; he cloſed them ſtrictly one upon the other, each remaining upon its Tree, and then plaiſter'd them with *Graffing-Wax*, and ty'd them; and ſet up a Stick near to them, and ty'd the *Stock* to it, that it might not be hurt by the ſhaking of the Wind; and when he ſaw they were perfectly united, (which may be perceiv'd by the Branch beginning to ſhoot anew, which is commonly in leſs than ſix Months) he cut the Branch off the bearing Tree; ſo that it remain'd join'd with the wild one, which by this Means was improv'd.

He alſo tells us, His Way of cutting of Joints, by which Means great Branches of *Orange-Trees* may become perfect Trees, and be caus'd quickly to bloſſom and bring forth Fruit.

His Method is; He takes a long *Branch* of an *Orange-Tree*, (the longer it is, the higher the Tree grows) he cuts it according to its Joints or Years; when the firſt Joint, which is near the Trunk, can be met with, much is got by it, as to the Length of the Branch; but if that cannot be gotten, the next is to be taken. Then he cuts quite off all the *Side-Branches* of two and three Years and upwards, but lays them by carefully; for if theſe be treated according to their Age, they will be ſo many little *Orange-Trees*. The ſmalleſt Twigs alſo he takes off with his Knife, which he cuts below the Buds, either with or without Leaves, and does them up with his *Noble Mummy*, and ſo nothing is loſt; for ſo all may become either Trees or Shrubs.

When a long Branch has *Buds* with one ſingle *Leaf*, theſe may be left on; but when a *Branch* is freed from the *Twigs* of the Age of ſome Years, then it is to be bent in a Semicircle, and a Bit of a *Branch* that has been cut to Pieces is to be taken and apply'd to the Sinuoſity or Bending, and ty'd on with Packthread; and ſo another little Stick on the other Side is to be ty'd with the ſame Packthread;

then the Packthread is to be brought over, and ty'd underneath, ſo that neither *Bark* or *Trunk* may be cut by the Packthread: Then the whole being dipt in the *Noble Mummy*, a little cooled, is to be committed to the Ground.

When a Branch that has been thus prepar'd, has been for ſome Time in the Ground, it will begin to ſhoot its *Roots* both thro' the *Joints* and the *Pores* of the *Bark*, when the *Mummy* falls off.

He tells us alſo of his Way of Planting a *Branch* of an *Orange-Tree*, the wrong End upwards. He ſays, he took a pretty big *Branch* of an *Orange-Tree* in *Auguſt*, and took off all the *Side-Branches*, but not the *Buds*, and cut it exactly at the Joint, and dreſs'd it above and below with *Mummy*, and ſecur'd it at the Bottom with Props and Ligatures, and planted it the ſmall End downwards; from whence it neceſſarily follow'd, that the Buds with their Leaves hung downwards. When the *Mummy* began to break, the *Root* began to appear, and the *Buds* began to ſhoot, and became very fine *Twigs*. But he adds in the reverſe Way of Multiplication, a Stove or Repoſitory is neceſſary.

Mr. *Mortimer* adviſes, in the Month of *May*, or when you ſee the *Mulberry-Tree* put forth, to bring *Orange-Trees* out of the Conſervatory; and alſo to tranſplant them: To fill the Caſes *with Natural* Earth, taken up *half a Spit* deep, from under the Tuft of the beſt Paſture-Ground, which has been fodder'd on, and to mix it with rotten Cow-Dung, or very mellow Soil, ſkreen'd and prepar'd ſome Time before; and if this be too ſtiff, to ſift a little Lime among it, and to put in a few rotten Willow Sticks; to cut the two biggeſt Roots a little, eſpecially at the Bottom; and to ſet the Plants not too deep. He adviſes alſo, to lay ſome Bruſhwood at the Bottom of the Caſe, to give the Water a free Paſſage, that it may not rot the Fibres. To ſet them in the Shade for a Fortnight, and afterwards to bring them into the Sun by Degrees, and to water them with Water in which Sheeps Dung has been infus'd, and has ſtood in the Sun for ſome Days before it be us'd; but he cautions againſt Drenching them too much at firſt, and letting it touch the Stem. He adviſes, That if you cut off any Branch, to make a Sear-cloth of *Roſin*, *Turpentine*, *Bees-Wax* and *Tallow*, and to plaiſter the Wound with it 'till it is healed.

Mr. *Bradley* tells us, That whereas Mr. *Evelyn* has in ſome of his Works mention'd a Method of Graffing *Orange-Trees*, which has been ſo little taken Notice of by Gardeners, that he had never ſeen it practiſed, 'till by Accident he found it done by Mr. *Whitmil*, at *Hoxton*, who, while ſome of his *Orange-Stocks* were in the Conſervatory, had the Misfortune to have them gnaw'd by Mice; they having bark'd a Couple of them ſo near the Root, that he could neither *inoculate* or *inarch* them, try'd the Experiments of Graffing one in the Bark, and the other in the Cleft. Theſe Graft's both took, and that *Orange-Tree*, that was graffed in the Bark ſhot vigorouſly the ſame *Summer*; but that which was graffed in the Cleft ſhot more moderately, and put forth ſeveral Bloſſoms a few Months after Graffing; and both of them made handſome Plants three or four Months after Graffing. This Moderation of that graffed in the Cleft, he ſuppoſes might be occaſion'd by the Pinching of the Cleft, and by that Means Checking the too vigorous Paſſage of the Sap of the Stock.

The Soil.] Mr. *Mortimer* ſays, The moſt proper Earth to plant *Orange-Trees* in, is that which is taken out of a *Melon* or *Cucumber*-Bed, and equally mix'd or temper'd with a fine loamy Earth; and ſo to remain all the *Winter*, to be ſifted into Caſes: Or that inſtead of the Earth of a *Melon* or *Cucumber*-Bed, you may uſe Neats Dung, and order it as the *Melon*-Earth.

The Earth, Mr. *Bradley* ſays he has made Uſe of with Succeſs, was one third Part of *rotted Wood*, one third Part of freſh *ſandy Loam*, and as much *Melon*-Earth well mix'd and ſifted together: And this Soil, he ſays, he always found to make his Trees proſper, and produce excellent Fruit.

Monſ. *Liger* ſays, That the *Orange-Tree* grows naturally in a moiſt *Soil; but then it is in ſuch a Climate where the Sun* has Power to correct that Humidity: And therefore, if we would accommodate our ſelves to the Nature of the Tree, we muſt compoſe an Earth of ſuch a Temper, that for Want of this Heat, the Humidity may not turn into a too groſs and too cold Humour. And on the other Hand, that the Earth be not too light; for in that Caſe the Tree will in a great Meaſure be depriv'd of the Subſtance requir'd for its Nouriſhment: And to avoid theſe two Extremes, he propoſes the following Compoſition as the moſt proper for temperate Climates.

Chuſe a good ſubſtantial Earth, as a flat blackiſh Gravel, or a greyiſh Soil, neither too light nor too moiſt; ſift it, and put to it two thirds of bed Mould, and one of Cow-Dung, throughly rotten, all being well mixed together; and when the *OrangeTrees* are planted cover the Superficies three Inches deep with another Earth, compoſed of Part of that which is natural and Part of pure Mould.

He ſays, ſome uſe the Earth that proceeds from the rotten Stems of Citruls and the Leaves, of Melons and ſome other Plants, mix'd together, mingled with one third Part Mould.

Of potting Orange-Trees.] When the Mould is light, the Tree may have a larger Pot than when it is more loamy or heavy; for altho' it be directed to let them have ſmall Pots, this is chiefly upon account their being watered by unskil

Perſons; for if the Earth be heavy, the Water will lie long at the Root of an *Orange-Tree*, and if it does ſo, it will chill the Root and deſtroy the Plant.

It is common for Trees to ſuffer by watering when they are in large Pots, eſpecially Tubs, and then it is uſual to ſay, they are over-potted; and the Remedy for it is to ſhift the Trees into a leſſer Pot; whereas if *Orange-Trees* be planted in a light Mould, they will bear larger Pots, and then they will ſuffer but little Injury by being watered more than is neceſſary, becauſe the Water will not lie cold and chilly about their Roots, but will paſs freely, and the Trees will thrive.

Mr. *Bradley* ſays, there is a great Difference between the planting *Orange-Trees* in Pots, and in Tubs, as to the Health of the Plants, for the Tubs being almoſt as broad at Bottom as they are at the Top, they hold Water in their Bottoms a great deal longer than Pots will do, and ſo often injure the Roots.

If *Orange-Trees* out-grow the Tubs or Caſes, in which they are, then the Roots ſtrike into the Wood of the Tubs, and then, when they are ſhifted, they muſt be torn or broken; and when they are ſhifted it is a troubleſome Matter to diſengage the Root from the Tub; and as the Tubs will ſcarcely laſt above four Years, before they will grow rotten, ſometimes there will be a Neceſſity of ſhifting them at an unproper Seaſon, which endangers their Growth; but good Pots are not liable to this Inconvenience.

For the watering of *Orange-Trees* Mr *Mortimer* recommends *Sheeps* or *Deers* Dung ſteeped in water, about half a Buſhel to a Hogſhead, which may be fill'd up five or ſix times without renewing the Dung; but this Water muſt not be us'd before it has ſtood three Days in the Sun, for the firſt time, and about two Days for the others; but if the Trees have once began to be watered with this, it muſt be conſtantly made uſe of, or the Trees will decline.

Mr. *Bradley* tells us, that Mr. *Fairchild* has obſerved, that the *Orange-Tree* has male and female Bloſſoms; the male having only the *Stamina* and *Apices*, with their Duſt, and the female Bloſſoms a large divided *Piſtillum*.

He adds, that the *Hermaphrodite* Orange is one, which upon the ſame Tree have compleat Oranges, compleat Lemons, and ſometimes half an Orange join'd to half a Lemon-Fruit quartered regularly.

He ſays likewiſe, *Oranges* have been made to ſtrike Root, and produce *Branches*, *Leaves*, *Flowers* and *Fruit*, by ſetting the ſingle *Leaves* half Way in the Earth.

A Remedy for Orange Trees that ſlip their Bark.] *Orange-Trees* ſometimes fling off their Bark in Flakes of about a Foot long: This Diſeaſe ſhews it ſelf by a Speck of Gum iſſuing out of the Bark, and a little time after the Bark flies from the

Wood, and then you may perceive a great Number of ſmall black Inſects between the Bark and the Wood.

For this Diſtemper Mr. *Bradley* propoſes the following Remedy; Firſt to cut the diſtempered Bark from the Wood, till you have left nothing in the Wound but Health and Freſhneſs, and no Spots; and afterwards to waſh the bare Wood with Water, in which the Stalks of *Tobacco* have been boiled, the Water being warm.

To make this Water, boil a Pound of Tobacco Stalks in four Quarts of Water for a Quarter of an Hour. This is a ſovereign Remedy againſt Inſects, eſpecially ſuch as are in the Bark of Trees.

Having boiled the Tobacco Stalks as directed, beat ſome *Campbire* very ſmall, then melt ſome Bees-Wax and Roſin, and having dipt a Linen Rag in it, while it is warm, ſtrew the powdered *Campbire* upon it, and apply it to the naked Wood, above and below the Inciſion, for two or three Inches, and bind it on with Baſs. This will deſtroy even the Eggs of thoſe Inſects. Let this remain on for twelve Months, and then take it off, and if you pleaſe, you may ſupply the Place of the Plaiſter with Cow-Dung.

You may alſo water the Heads of the Trees now and then with Water wherein Tobacco Stalks have been infuſed.

There are *Orange-Trees* at Sir *Nicholas Carew's, at Bedington,* according to the Account of Mr. *Henry Day*, the ingenious Gardener, that are fourteen Foot high from the naked Ground. The Girt of the Stem is twenty-nine Inches, and the ſpreading of the Branches is nine Foot one Way, and twelve Foot another. Theſe Trees are compleatly full of Flowers, and continually full of Fruit, which ripens perfectly.

A certain Author, in a Letter to Mr. *Bradley* concerning the Propagation of foreign Plants in *England*, ſays, that the *Barbadoes China Orange* exceeds the *Lisbon* in the Richneſs of the Juice; and that there is in that Iſland another Fruit of the *Orange* Tribe, which is called a a *Shaddock*, and is from four to eight times as big as an *Orange*, being a noble Fruit to look at, and alſo not of an unpleaſant Taſte. There are of this Fruit two Sorts, the *red* and the *white*, but the *red* is the better Fruit.

21. ORCHARD.

THE natural Soil of an Orchard, Mr. *Mortimer* ſays, is more to be regarded than that of a Garden, becauſe the Furniture of a Garden takes but ſhallow Root, and ſo may be eaſily manured to the Depth, that the Plants require; but Fruit Trees taking deep Root ought to have a deep and rich Soil.

If the Land deſign'd for an Orchard be a Turf or Green-ſwerd, he adviſes, that it be plowed two Years before it be planted with Trees, in order to make it looſe and mellow; and the deeper it is plowed the better, becauſe the Trees will the eaſier take Root; and if you lay on it Dung, or Manure, it will be the better mixed with the natural Soil by plowing: But if you have a mind to ſow *Peas* or *Beans*, *&c.* with your Trees, it is the beſt way to dig it.

In planting the Trees ſet them not too near together, nor ſet any Plants near them, that may rob them of their Nouriſhment, either from the Earth, Dews or Rains.

In an Acre of Ground, at forty Foot Diſtance, two hundred and fifty ſix Trees may be planted; at fifty Foot Diſtance, an hundred and ſixty nine; and at ſixty Foot Diſtance, an hundred and twenty one. Let the Earth about the Trees be always kept light and clean, and often cultivated, ſo as to mend and clean it as often as is required.

Earth that is hot or dry ought to be dug or tilled in Summer time, either a little before it rains, while it rains, or ſoon after it has rained; and the oftener and the deeper it is tilled, the better. The Tilling it in hot Weather will kill the Herbs, or Weeds that grow in it: But cold, ſtrong and moiſt Land, is beſt to be tilled in dry Weather.

The Stirring of the Earth frequently prevents its native Virtue from being waſted by the Growth of Weeds; but theſe Stirrings are not ſufficient except the Weeds be gathered out; for they will in Summer and *Autumn* multiply without End.

But when the Trees are in Bloſſom, then the Earth is not to be ſtirred.

If the Earth be dry, you may give it a large Culture, or Tillage, the Beginning of the Winter, and alſo in the Spring, that the Snow and Rain that falls may the more eaſily ſink into the Earth.

But where the Earth is ſtrong and moiſt, it is beſt to give it only a ſmall Tillage in *October*, to remove the Weeds, and then to give it a large Tillage in the Spring, when the Rains are over: And as for heavy, moiſt Ground, if you trench it againſt Winter, you ſhould break it up but ſlightly the firſt Time.

But if the Earth of your Orchard be ſandy or dry, then make Gutters to carry off the Water, that falls in haſty Showers, to thoſe Places that are manur'd, that none of it may be waſted, to no Profit, in Walks or Alleys: But if the Soil be ſtrong and fat, drain it from the Orchard as much as may be.

If the Sand lie flat, ſo that the Water is apt to ſtand upon it, or if the Soil be ſhallow, it may be helped ſomething in plowing, by gathering the Land always up and near the Place where you deſign to plant the Rows of Trees, and this will deepen the Soil where they ſtand, and draw off the Moiſture.

Rain Water does not ſink ſo deep into the Land as Snow, and therefore if the Land be moiſt, it is advantageous to remove the Snow from about the Trees.

Mr. *Switzer* adviſes to chuſe a Piece of Ground for an Orchard in a declining Land, lying open to the *South*, *South Eaſt* or *South Weſt*; this he would have defended from the *North* Winds by Woods, Eſpalier Trees, Buildings, *&c.*

The Soil he prefers is a dry, rather than a moiſt one, a flat and natural deep Mould; becauſe Orchard Fruit Trees do not only grow very large, but broad alſo, and do ſhoot a conſiderable Depth into the Earth. If the Ground be uneven, he adviſes to level it, otherwiſe thoſe Trees which grow pendant and are not apt to grow tall, ought to be planted on the higheſt Situation, and thoſe that grow tall in the loweſt Places.

He recommends the planting Rows of *Walnut* or *Cheſnut* Trees on the *North* Side of an Orchard eſpecially, and alſo on the *Weſt* Side, to break the Force of the Winds of *Autumn*, which are very injurious.

As to preparing the Ground, he adviſes, if it be a flat, watery, ſhallow Soil, to plow it two Years before you plant it, and gather up the Ground near the Places where the Trees are to be planted, and ſo the Furrows that lie between will help to carry off the water.

As to the Poſition of the Trees, he directs to ſet the firſt Rows on the *North* Side, with Pear Trees, or ſuch Trees as are apt to grow the talleſt; and as they decreaſe in height, the reſt to the *South*, that ſo they may all, as much as can be enjoy the *South* Sun, and be leſs expoſed to the *Northern* Winds.

If it be a Turf or Greenſword, to plough it as before, to make it mellow and looſe, and to manure it with proper Manure.

If it be a ſpringy Land, to trench the Head of the Spring deeper than the Channel runs in the Earth; and this Trench you may either leave open, and cleanſe it every Year; or you may fill it with *Oſier*-Boughs, and cover it with the Earth and Turf that was digg'd out of it.

As for the Form of the Orchard, if you would have it beautiful and magnificent, you may make a handſome Walk all round it, and a grand Walk the whole Length through the Middle; as alſo a ſpacious croſs-Walk. The Way to do this, may be, by planting the Trees in a Line, and leaving a double Space between the Rows in the Middle, on the Sides, and acroſs. Theſe Walks may be planted with ſeveral Sorts of Fruit: You may plant lofty *Pears* in the middle Walk, the larger Kinds of *Apples* in the croſs Walk; *Cherries* in one End Walk, and *Golden Pippins* in the other; and *Codlins* or other Fruit-Trees in Hedges, in the two Side Walks.

By Planting your Orchard thus, and keeping the Walks mowed, you will have an agreeable Variety; and make it as delightful as a Grove or little Wood: But you muſt be ſure to take Care to give the various Kinds of Fruit their proper Situations and Poſitions.

As for the Diſtance the Trees ſhould be planted, he recommends twenty four Foot as proper, but not to exceed fourteen Yards; and in this you ought to have Regard both to the Kinds of Fruit-Trees you would plant, and the Soil; becauſe ſome Sort of Trees require more Room than others; and if the Land be rich, the Trees will arrive to a greater Stature than in poor Land; and a good Diſtance always is beſt, not only for the Growth and Health of the Trees, but alſo for the Ripening of the Fruit.

If it can be done with Security, it is the beſt Way to remove Trees very young, and to ſet them preſently, pruning the greateſt Part of the Tops; but not cutting too much of the Roots.

If the Trees, you are to remove, are of the Age of ten or twelve Years, you muſt dig a circular Trench round them in *November*; this Trench ſhould be as narrow as may conveniently ſerve, but as for the Depth of it, it ſhould be ſo deep as to meet with moſt of the ſpreading Roots: The Diſtance of this Trench from the Body of the Tree ſhould be ſuch, as you would cut the Root off, when you remove it. Having made the Trench, cut off the Roots *clear, but do not ſplit nor bruiſe the Bark*; and when you have done this, fill up the Trench again.

The great Roots will by the *October* following have put forth many fibrous Roots, and be preparing more; which, when you remove it, will make the Tree able to draw a greater Quantity of Nouriſhment than it would otherwiſe do; and by that Means will thrive better in its new Situation.

He alſo directs, That in Tranſplanting large Trees, you ſet that Side of the Tree to the *South-Eaſt* that ſtood there before, unleſs it be ſuch Trees that lean, and in thoſe (however they ſtood before) you muſt ſet the inclining Side to the *South-Weſt*, from whence come the ſtrongeſt Winds.

When you have firſt planted an Orchard, you may ſow the Ground with *Beans*, *Peas*, or other Kitchin Legumes; or with Wheat, ſo that Care be taken that the Trees are not injured by the plowing and gathering in the Harveſt: But if the Ground be not ſubſtantially good, the Wheat will ſo much impoveriſh the Land, as to impair the Trees, and hinder them in their Growth.

As to the Management of tall Orchard Fruit-Trees, he directs, to cut off all the Side-Branches, 'till the Trees have attained the Height you would have them; but if you would have ſpreading Trees, you muſt leave ſome Side-Branches, but not ſo many as to weigh down the Tree; and you muſt not ſuffer them to grow buſhy-headed for the firſt three Years. This you may prevent,

vent, by cutting off ſome of the inſide Shoots, ſuch as grow pendant, and ſuch as croſs one another.

If the Soil be not ſo rich as it ſhould be, you may amend it in two or three Years, in the *Winter*, by opening the Earth round about the Trees, on the Outſide of the Ground that was digg'd when they were firſt planted there; and then you ſhould fill up the Trenches again a Month after with ſome proper Manure, mix'd with the Mould that came out of them.

Or you may improve the Soil by making a Trench along the upper Part of the Orchard, and a Gutter down to every Row of Trees; and take away the Turf round about each Tree, about the Breadth of half a Yard; and when there happens a rainy Day, let the Draining of ſome Dunghill that lies near, be let down to one Row, and the next rainy Day to another Row, and ſo on; ſo that each Row of Trees may have three or four of theſe Refreſhments in a *Winter*.

But if the Orchard, by being level, will not permit of this Method, then pour two or three Pails full of Water, in which Dung has been ſteep'd, into the Places where the Roots were opened, and put in the old Earth again, againſt the *Spring*.

He recommends the *White-Thorn*, as the beſt Fence for an Orchard, which when it is grown up, may be plaſh'd, to prevent Swine or Sheep from creeping through it. But he does not approve of any ſmooth, quick Fence; becauſe their Tops and Roots, when grown, are injurious to the Hedge and Fruit Trees.

You may plant two Rows of good *Hawthorn*, and a dead Hedge on the Outſide of the Ditch, and by doing this, the *Quickſet* will grow the faſter; for if the Hedge be upon the Ditch, it will be apt to choak the *Quick*.

If there be an old Hedge about an Orchard, it ſhould be well plaſh'd, the Ditch amended, and all the Trees on the Outſide of the Hedge ſhould be cut down, except on the *North* and *Weſt* Sides; the one requiring a Defence to keep the Orchard warm, and the other a Security againſt the *Autumn* Winds. But the *South* and *Eaſt* Sides ought to be open, to admit the Sun's Rays, for the Ripening of the Fruit.

Mr. *J. B.* The Author of the *Herefordſhire Orchards* enumerates the Benefits of Orchards, that beſides their Profit, they ſweeten and purify the ambient Air, and by that Means, he thinks, conduce to the Health and long Life, for which *Herefordſhire* has been famous; they alſo fence their Habitations and Walks from the Strokes of Winds in Winter, and afford Shade and Shelter in the Heat of Summer, but harbour a conſtant Aviary of ſweet Singers without Wires.

He prefers an Orchard that has a Situation inclining towards the *North*, yet he thinks there is no neceſſity to be nice in that Point; for Orchards prove well towards the *North*. In like manner he rather approves of a Situation towards the *Eaſt* than the *Weſt*, altho' the *Weſt* Wind is the beſt, and the *Weſtern* Sun ripens beſt.

The Blaſts uſually come from the full *South*; and about Noon time of the Day, it may be obſerved, that the hurtful Winds are apt to gather into Channels, upon the Surface of the Earth, as the Streams of Water do: And it is found by yearly Experience, that one Point of Heaven, at a Miles Diſtance, is far more agreeable or hurtful than another, either by Reaſon of neighbouring Hills and Vales, or ſuch as are at a Diſtance, or by Reaſon of Vapours which ariſe from the Lakes, mooriſh Ground or Rivers, which are turn'd into Blaſts by Froſts.

It is grown into a Proverb in *Herefordſhire*, that moiſt Froſts, and ſuch as follow Rain, blaſt, but dry Froſts do not; and dampy Grounds cauſe ſuch Froſts, that in other Places would be dry ones.

Sometimes in a Bottom the Air is ſo cloſe penn'd up, and the Heat of the Sun ſo multiply'd by Reflection, that it is apt to collect the *Southern* Blaſts, as in a Furnace or Oven; and theſe are the moſt frequent, and moſt hurtful to the nicer Fruit, and to Hops.

If the Ground be equable, that is, if it be in any Proportion inclining to a Level, he thinks it is pity to ſtock it with natural Plants; But that the *more expedite* Way would be to ſet Crab Stocks in *October*, in the *quincunx* order, at thirty Foot Diſtance; and the next Spring, after they have ſtood three Years, to have them grafted with the beſt Fruit, by an Artiſt.

Theſe *Crab-Stocks* he would not have to be above the Bigneſs of a Man's Wriſt; becauſe if they are bigger they will not be ſo apt to cloſe with the Graft, and the Rain finding a Hole, will be apt to endanger the Stock. He ſays, it is a common Cuſtom with them to ſet two or three Grafts upon the plain Stock, which Grafts for Variety Sake might be different, without any Hazard or Damage.

It has been alſo the Cuſtom with them, of late, for one only Graft, to ſlope the Stock; and they think this is the more certain Way to unite the Stock and Graft compleatly, and with Expedition.

If the Stocks in a Nurſery be as ſmall as Twigs, he accounts the ſureſt and ſpeedieſt Method to be by the Joint Graft, where no leſs than eight Sides are engaged.

If the Ground be very unequal, he thinks it a great Charge and a Vanity to level it; and beſides the Beauty and Refreſhment of a Wilderneſs, an Inequality may be better, more kind and more fruitful, than an Equality, and of a Certainty, more fit for Variety, and a Change of Seaſons. This Ground is the fitteſt for a natural Apple, which is injured, maimed or wounded, when it is prevented from taking its natural Courſe and forced into order; yet he would not plant in thoſe Bottoms where the Water cannot paſs away: The Deſcent would be beſt for the Situation of a natural Apple.

Clay Land binds a Tree faſter from the Strokes of the Wind; and ſandy Land haſtens the Growth of it.

If the Cruſt, or rich Surface of the Earth be but near a Foot deep, he is of Opinion, it is fully enough; becauſe if the Surface be deeper, he has not ſeen any of his Country Stocks, which have been ſet more than a Foot deep, except they are large Stocks, which ſhould keep their former Depth.

In ſtocking Ground, if you are not certain, as to the nature of the Ground, he approves of Pears and Apples alternately, which will afford Beauty, Profit and Variety; or to plant a Winter Apple alternately with a Cyder Apple. As for Pears, they grow a great while before they take up much Room; and when a grafted Apple is decayed, for the generality the Pear-Trees begin to be in Perfection.

Every Orchard, with them, is commonly fenc'd from the *North* and *North-Eaſt* Winds, with Rows of Elms.

Mr. *Bradley* informs us, that one of his Acquaintance having occaſion to remove about a Mile from his former Habitation, where he had an Orchard of Apple and Pear Trees of twenty Years Growth, which were in good Health, and bore Fruit plentifully, was deſirous to take them along with him, and did it in the following Manner.

He opened Trenches about the Root of his Trees in *November*, and at the ſame Time made Holes for them in his new Situation; which Holes were big enough to receive them with Clods of Earth about their Roots. And ſoon after, the Froſts having ſo ſufficiently hardened the Earth about their Roots, he raiſed his Trees out of the Ground, with Levers; without breaking any of the Earth from them, and carried them on Sledges to his new Orchard, where they were planted without cloſing any Earth to their Roots, till it began to thaw, and then he filled up the Trenches, and trod down the new Earth very cloſe; and a Month after, prun'd off one third Part of their Boughs, to make Amends for the Part of Roots that they had loſt; and the next *Summer* he had a good Parcel of Fruit upon them.

22. ORIENT.

ORIENT ſignifies the *Eaſt*.

23. ORIENTAL.

ORIENTAL ſignifies *Eaſtern*.

24. ORIENT EQUINOCTIAL.

ORIENT EQUINOCTIAL is that Point of the *Horizon* the Sun riſes upon,

whe

when it enters the Signs of *Aries* and *Libra*.

25. ORIENT ÆSTIVAL.

ORIENT *ÆSTIVAL* is the *Summer-Eaſt*, or *North-Eaſt*.

26. ORIENT HYBERNAL.

ORIENT *HYBERNAL* is the *Winter-Eaſt*, or *South-Eaſt*.

27. ORNITHOGALON, *or* STAR-FLOWER.

ORNITHOGALON is deriv'd of the *Greek* Ὀρνιθόγαλον, which ſignifies *Hens-Milk*, or as *Marcellus* will have it, by Reaſon of the Whiteneſs of its Flowers, which reſembles the Whiteneſs of Milk.

Deſcription.] This Plant from its Root ſhoots forth long, narrow, creeping Leaves; from the Midſt of theſe, riſes a Stalk a Foot and half high, adorn'd at the Top with ſeveral Pedicles or Foot-Stalks, in the Form of an Umbrello, bearing Flowers conſiſting of ſix Leaves, diſpos'd in a round Form. In the Middle grows a Chive, which becomes a roundiſh Fruit, divided into three Cells, fill'd with little, roundiſh, *black* Seeds.

Varieties.] There are of it ſeveral Sorts:

The *Great Ornithogalon*, bearing a *white* Flower, hanging down like the Tops of *Fennel*:

The *Ornithogalon* with a *bluiſh Flower*:

The *Arabian Ornithogalon*, which is a Sort of *Hyacinth*.

The firſt Sort is the ſcarceſt, and there are of different Colours of them; as, the *dirty* coloured, the *greeniſh white*, and the *pale blue*.

This Plant is multiply'd by Bulbs, which are very plentiful. It delights in an Earth compos'd of two thirds Mould, and one third of light Earth, full of Salts, ſuch as certain *blackiſh* Sands. The Bulbs are to be planted two Inches deep in *September*, and well water'd, as Occaſion requires. They came originally from the *Indies*, and therefore require a Sunny Expoſure; and therefore do better in Pots, than the open Ground, for the Sake of Removing from Place to Place. They are ſenſible of the Cold, and therefore are to be ſhelter'd in the Green-houſe. It will not bear to be often tranſplanted; but whenever that is done, you muſt ſtay 'till its Flower is quite paſt, and its Seed ripe; and then being tranſplanted, it will ſhoot forth new Roots.

28. OSSICLE.

OSSICLE, among *Botaniſts*, ſignifies the Stone of a *Cherry*, *Plum*, &c.

29. OSIERS.

OSIERS like the *Withy*, *Sallow* and *Willow*, are rais'd either by *Cuttings* ſtuck in the Ground, or large Truncheons eight or ten Foot long: When they put their Buds out firſt, you muſt rub off all the under Buds, leaving only a few near the Top to draw up the Sap.

Way of Propagation, &c.] They may alſo be rais'd of *Seeds*, but as they ſeldom come to be ripe in *England*, and the other Ways of Raiſing them being eaſy, the Raiſing them by *Seeds* is ſeldom practiſed, no more than that of Raiſing them by *Layers*.

The *Oſier* grows beſt in the moiſteſt Lands, eſpecially ſuch as are overflow'd with the Tides, and left dry at the Ebb.

The beſt Seaſon to tranſplant them, and lop them, is in *February*, juſt before the Sap begins to riſe, eſpecially if you deſign to raiſe by *Cuttings* or *Truncheons*, thoſe *Cuttings* being accounted beſt which grow neareſt the Root.

30. OVIPAROUS.

OVIPAROUS ſignifies that breeds by Eggs or Spawn.

31. *The* OXE-EYE, *or* BUPHTHALMON.

THIS Plant is call'd *Buphthalmon*, from Βȣ̃ς an *Oxe*, and ὀφθάλμος an *Eye*, *Gr.*

Deſcription.] This Plant from its Root ſhoots forth pretty high Stalks, and large, long, ſpreading Leaves, indented as it were by Pairs, round the Edges; at the Top of the Stalks grow Flowers in Rays, whoſe Disk is compos'd of ſeveral Rounds of *Leaves, in the Shape of* Gutters, at a Diſtance one from another, and whoſe Crowns are compos'd of half Rounds, reſting on the Embryos, and contain'd in a ſcaly Cup. Theſe Embryos in Time grow to be ſquare, and very ſmall Seeds.

Way of Propagation, &c.] The Way of Multiplying theſe Plants is by their *Seed* and their *Roots*, ſplit to Pieces. The Multiplying them by *Seeds* is tedious, and not much practiſed; that by *Roots* is much quicker.

They will grow in any ſort of Earth; ſplit the *Roots*, and ſet them, and give them Water immediately after Planting. Plant three Inches deep in the Earth, and Span a Diſtance either from one another, or from any other Plants in the ſame Borders.

P A

1. PALED.

PALED FLOWERS are ſuch as have Leaves ſet about a Head, or Thrum.

2. PALMS.

PALMS are the white Buds of Sallows, or Willows, which come before the Leaf.

3. PANICLE.

PANICLE, a ſoft Kind of woolly Beard, on which the Seeds of ſome Plants hang down.

4. PANSIES.

Variety and Deſcription.] THE Stems of this Plant are apt to creep on the Ground. The Leaves are partly round and partly oblong. The Stems branch out into Boughs, at the Top of which grow the Flowers compoſed of five Leaves, bearing a Cup divided into five Parts, and are accounted a Species of *Violets*. The Flowers are of three Colours, *white*, a *yellow purple*, and *blue*. When the Flowers fall, there ſucceeds a Fruit, which reſembles a Shell, full of ſmall Seeds.

Way of increaſing, &c.] This Plant is increaſed by *Seed*, ſown as thin as may be, in Beds, and when it is grown high enough to be tranſplanted, we put it into Pots, compoſed of half Mould, and half Kitchen Garden Earth, well ſkreened; and water it after Planting, which is all the Culture it requires.

5. PAPILIONACEOUS.

PAPILIONACEOUS Flower is a Flower of ſome Plants which repreſents ſomething of the Figure of a *Butterfly*, with its Wings diſplay'd; and in ſuch the *Petala*, or Flower Leaves, are always of a di*form* Figure. They are four in *Number, but joined* together at *Extremities*. One of theſe is uſually larger than the reſt, and is erected in the Middle of the Flower, and called by *Botaniſts*, a *Vexillum*. The Plants which have theſe Flowers, are of the leguminous Kinds, as *Peas*, *Vetches*, &c.

6. PAPPOSE.

PAPPOSE ſignifies covered with a *Pappy*, or a ſoft, light Down.

7. PAPPUS.

PAPPUS is a ſoft light Down, which grows out of the Seeds of ſome Plants, ſuch as, Thiſtles, Dandelion, Hawkweed, &c. and which buoys them up ſo in the Air, that they may be blown any where about with the Wind.

8. PARASITICAL PLANTS.

PARASITICAL PLANTS are ſuch as are increaſed by the Stock of others.

9. PARSLEY.

THERE are two Sorts of this Herb, the *common* and the *curled*: They are multiply'd by *Seeds*, ſown pretty thick in the Spring, when the Froſts are over, in good, well dung'd Ground, that is moiſt, or elſe it ſhould be watered. It will bear any moderate, but not violent cold, and then it is convenient to defend it by ſome covering from it. To make it produce good Roots it is neceſſary to thin it in the Beds or Borders, where it is ſown, and to give it very good watering in hot Weather. The Leaves being cut, ſhoot out new ones like *Sorrel.* The ſecond Year after it is ſown it produces Seeds which are of a greeniſh grey Colour, a little bending inward on one Side, and all over ſtreak'd from one End to the other. They are gathered in *Auguſt* and *September.*

10. STONE PARSLEY.

IT is ordered the ſame Way as *Alexander*, which ſee.

11. ROYAL PARSLEY.

Deſcription.] THE Leaves of this Plant, ſays Monſ. *Liger*, ſpring from the Root, and are like the Leaves of Parſley; out of the midſt of the Leaves ariſes a Stem about a Foot high, on the Top of which grow Flowers of a *white* or *yellow* Colour, compoſed of five Flowers together, diſpoſed like thoſe of the *Lilac*, and falling down like the Tops of Fennel.

Way of Propagation, &c.] Theſe Plants are multiplyed by ſplitting the Roots which are joined together by ſmall Fibres, which are to be planted three Inches deep, in a ſtrong moiſt Ground; or if the Ground be not of that Quality, that Defect muſt be made up by conſtant waterings.

It will continue three Years, and then it muſt be taken up, and the Stock, it has produced, being removed from it, will ſerve to propagate it. It requires but a moderate Heat, and therefore is not to be planted in Places much expoſed to the Sun.

12. PARNASSUS.

Deſcription.] THIS Plant is thus deſcrib'd by Monſ. *Liger.* From its Root it ſhoots forth Leaves in the Shape of a *Violet*, ſticking to long Stalks of a *reddiſh* Colour. From the Midſt of the Leaves ariſe Stalks of a Foot high, ſlender, but ſtrong; at the Bottom of each of which is a Leaf, without a Stalk, which embraces them; at the Top a Flower like a Roſe, compos'd of ſeveral unequal Leaves, and all of them fring'd, and plac'd in a Round. Out of the Midſt of the Flower ariſes a Chive, which becomes a membranous Fruit, ſomething of an oval Figure, having but one Seed-Veſſel fill'd with Seeds which ſtick to the *Placenta* or Cake, which is generally ſquare.

Way of Multiplying.] It is an annual Plant, and multiply'd by *Seed*, which is to be ſown thin, in the Month of *March*; it loves a greaſy Soil, and moiſt Places. It muſt be defended from the Cold, by the Help of Glaſſes, Straw, or Skreens of Straw.

When it is planted in Pots or Caſes, the Earth in them ſhould be two Thirds of ſubſtantial Kitchin-Garden Stuff, and one Third Mould mix'd well together.

13. PARSNIPS.

ARE a large, ſweet, and very nouriſhing Root. They are propagated by *Seeds* ſown in *March*, in a rich, mellow, well-ordered Soil, where the Roots will become very large; but ſhould not be eaten 'till the Froſts have entred the Ground. The Plants will appear above Ground in about three Weeks Time; and when they have been up about a Month, they ſhould be hough'd, leaving the Space of about five or ſix Inches between each Plant. The Tops ſhould be trodden down when they are grown to any Bigneſs; and by that Means the Roots will grow the bigger. *Radiſhes* may be ſown among them, which in about forty Days may be drawn off; or *Spinach*, which will be fit to cut before the *Parſnips* begin to ſpread. After they have been hough'd the firſt Time, keep them as clean of Weeds as you can. When you have rais'd them toward *Winter*, you may take them up, and lay them in Sand to keep them. And the faireſt may be kept for Seed, or elſe the faireſt and oldeſt of the Tops of thoſe Seeds may be taken in *Summer*, and ſown, whereby the faireſt Roots may be procur'd.

14. PARTERRE.

A *Parterre* is a level Diviſion of Ground, which for the *moſt Part faces the South*, and *beſt Front of* an Houſe, and is generally furniſh'd with *Greens*, *Flowers*, &c. There are ſeveral Sorts of *Parterres*, as *Bowling-Green*, or *Plain Parterres*, and *Parterres* of *Embroidery*, &c. *Plain Parterres* are more beautiful in *England*, than in any other Country, by Reaſon of the Excellency of our *Turf*, and that Decency and unaffected Simplicity that it affords to the Eye of the Spectator. Others are cut into *Shell* and *Scroll* Work; with *Sand-Alleys* between them, which are the fineſt *Parterre*-Works eſteem'd in *England*.

Of the General Proportion of Parterres.] An Oblong or Long Square, is accounted the moſt proper Figure for a *Parterre*; becauſe, by the *Rules* of *Perſpective*, or the natural Declenſion of the viſual Rays in *Opticks*, a Long Square ſinks almoſt to a Square; and an exact Square appears much leſs than in Reality it is: Therefore a *Parterre* ſhould not be leſs than twice as long as it is broad; Twice and Half is accounted a very good Proportion, and very rarely is three Times exceeded. As to the Breadth of a *Parterre*, it is to take its Dimenſions from the Breadth of the Front of the Houſe; if it be not above an Hundred Foot, it is too narrow; and if the Front be two Hundred Foot, the *Parterre* muſt be of the ſame Breadth.

Mr. *Switzer* tells us, He looks upon it a Fault in Deſigners to make their *Parterres* too broad, and that makes them appear too ſhort; when nothing is more pleaſing to the Eye than a contracted regular Conduct and View, as ſoon as a Perſon goes out of a Houſe or Building; and a forward direct View is the beſt, whether it be either *Parterre* or *Lawn*, or any other open Space, either two, three or four fold to the Width. And therefore he thinks theſe Deſigns may juſtly be found Fault with, when at the immediate Entrance into the Garden, the Nobleneſs of the View is marred, the Angle of Sight broke and confuſed; and indeed all that is valuable in Opticks undervalued.

He is of Opinion, that *Parterres* are generally made too large, and by that means a great Expence cauſed, while at the ſame time, Wood, and conſequently Shade, the moſt valuable of any Parts of a Garden, are very much diminiſhed.

And that whereas there ought to be a Terraſs Walk on each ſide the *Parterre* for an Elevation proper for View, one ſhould never make the Flat of a *Parterre* between Terraſs Walk and Terraſs Walk, above three hundred Foot; nor can it well be made leſs than an hundred and forty, or an hundred and fifty Foot, and then the Length at twice and an half the Breadth, would be three hundred and fifty Foot, which he reckons would be a handſome Proportion.

As to the adorning or furniſhing theſe *Parterres*, either plain or with Embroidery; it depends much upon the Size and Form of; and therefore muſt be left to *the Judgment* and *Fancy of the Deſigner.*

15. PASQUE FLOWER, *or* PULSATILLA.

Deſcription.] THIS Plant from its Stem ſhoots out long Leaves, like thoſe of Sage, all over hairy; from the midſt of which riſe Stalks divided into ſeveral Branches very full of Hair. At the End of theſe Branches grow Flowers either *red* or *white*, and diſpos'd like thoſe of *Pinks*. When theſe Flowers fall, they are ſucceeded by Fruits containing roundiſh Seeds, and of a greyiſh Colour.

Way of Propagation, &c. It it a hardy Plant, is increaſed either by its *Roots*, or ſown in hot Beds. This Sort is *red*, for the *white* one is increaſed only by *Seeds*, which are to be ſown in *March*, and cultivated like other Flowers ſown in the ſame Month.

Thoſe that are increaſed by *Slips* taken from the Root, are to be planted three Inches deep in the Earth, and then to be watered.

16 PASSION FLOWER, *or* GRENADILLE.

Deſcription.] THIS Plant is thus deſcribed by Monſ. *Liger*. It ſhoots out very long Branches, much like thoſe of a Vine, creeping on the Ground, if they find nothing to lay hold on to ſupport them; they are ſlender, and have Claſpers, with which they cling to every thing they meet with, Summer, and ſo hardy, that the moſt ſevere Froſts of our Climate will not deſtroy the Roots, altho', perhaps, the Plant has periſhed above Ground to all Appearance; that in the laſt hard Froſt he began to deſpair of two very large Plants, which ſtood abroad and were even cut down to the Ground without Hope of Recovery; but the *May* following there ſprang up above fifty ſmall Plants from each Root, only from the Fibres which remained.

Monſ. *Liger* ſays, that this Plant is a very ill Neighbour, becauſe the Roots are much given to rove; therefore he directs to plant it in Pots, or if it be ſet in Borders to make a Square of Brick or Tiles, about each Root, at leaſt a Foot wide, and becauſe the Roots multiply at a great Rate, he adviſes to divide them every Year, and to replant them ſeparately.

As to the Culture of this Plant, Mr. *Bradley* ſays, he has learn'd by a Letter that was ſhewed him from the *Weſt Indies* that it was an Inhabitant of ſwampy Places; and therefore in order to its bearing Fruit, muſt be planted in very moiſt and cool Places, where it may be continually ſupply'd with Water: And that at Mr. *Green*'s, a very curious Nurſery Man's at *Brentford*, he has ſeen a Tree with above three hundred ripe Fruits upon it. The Fruit were in Shape and Colour like *Lemons filled* with a beautiful *red Pulp and Seeds*, like the Fruit *of a Pomegranate*, and of no diſagreeable Taſte. This Tree was planted in Cow Dung, and from Time to Time, the Place about it renewed with the ſame cooling Soil.

But he ſays, the largeſt Fruit of this Plant, that he had ever ſeen, was ſome ſent to the *Royal Society*, by a Gentleman, dwelling, as he thinks, in the *Weſt* of *England*, with an Account of his Method of raiſing them. He had a large Tree againſt one Side of his Houſe, which happened to grow over a Drain that went from the Kitchen, and lay ſo Shallow, that the Roots of the Tree found their Way into it, and the Tree then began to produce Fruit.

Mr. *Whitmil* at *Hoxton* has now a new Sort of Paſſion-Tree, the like of which, he ſays, he has never ſeen before, which bears Fruit very well upon ſmall Plants, in Pots, ſome of which are full of Fruit.

17. *The* PEACH TREE.

THE *Peach* ſeems to have taken its Name in *Engliſh* from the *French*, *Peſche*, and the *Latin* call it *Malum Perſicum*, as tho' the Plant was originally a Native of *Perſia*.

A *Peach* is one of the moſt delicious Garden Fruits, if the Nature of it be well underſtood, and it be manag'd with Diſcretion. It is therefore worth the While to examine into the ſeveral Ways of Management of it; and alſo ſeveral Varieties of them.

Tho' there is a great Variety of them, yet a large Garden ſhould not be without all of the beſt Sorts, becauſe they ripen at different Seaſons beginning about the Middle of *June*, and continue to afford Fruit till *November*: But if a Garden be ſmall, a Perſon may chuſe his Fruit, and pleaſe his Taſte, out of the following Catalogue, by examining the Deſcription of every Sort.

The *French* being very much bent upon Cultivating *Peaches*; they have propagated a great Number, out of which theſe mentioned in the following Liſt are accounted the beſt Sorts.

1. The *Admirable*. This *Peach* takes its Name, as well for its Beauty and Goodneſs, as from its large Fruit; it is very *red*, and almoſt round; the Fleſh of it is good taſted, and very melting.

2. The *Alberge*. This Fruit is of a middle Size, a little flat, is *yellow* both without and within, has an excellent Flavour, but a ſmall Stone, and is colour'd with a *reddiſh purple* Colour.

3. The *Red Alberge*. This Fruit is more flat than the former; the Fleſh is *white*, but not ſo well taſted as the former.

4. The *Purple Alberge*. This Fruit is ſomewhat ſmall; it is of a *browniſh purple* Colour, it is more rare than the other two preceeding *Alberges*; but it is not ſo good as the *yellow*, which is an excellent *Peach*.

5. The *Andilly Peach*. This is ſomething like the *Perſian Peach* without, is *white* within, very large, round and fleſhy,

6. The *Apricock Peach*, which is by ſome call'd the *Scandalian Peach*: There are of this two Sorts, the one rough-coated and *yellow*; the other ſmooth and velveted, and of a *reddiſh* Colour, and both of them round: They may be rais'd from the Stone, and will bear and ripen well, either in Standards or Dwarfs.

7. The *Avant*, or *Early musked Peach*. The Fruit is ſmall and *white*, but the Juice is very ſweet: The Tree is a great Bearer, but is very ſubject to be invaded by *Piſmires*.

8. The *Bellegard*. It is a good *Peach*, but comes a little late; it is fair, large and round, and has but very little *red* within or without.

9. The *Belle de Vitry*; is a very large Fruit, flat, fleſhy and full of Knobs, rich, juicy, and very *red* towards the Stone; the Stone is very ſmall, and it is a very good late *Peach*. It is ſo very like the *Nivette Peach*, that ſome Perſons take it to be the ſame: But Mr. *Bradley* is of Opinion, that it is the Female of the *great*, *white*, *monſtrous Pavy*, being both pretty much alike, and alſo comes at the ſame Time: It is like the *Admirable* as to its Roundneſs, which is *white* both within and without; but the *Belle de Vitry* is of a *browniſh red*, and velveted.

10. The *Double Bloſſom Peach*, This *Peach* is more eſteemed for the Sake of its Flower than its Fruit; tho' the Fruit is large and fair; but it ſeldom bears,

and therefore is rather a Curioſity than a good *Peach*.

11. The *Bourdin*, is a Fruit that is large and fleſhy, of a middling Size, and pretty *red* in Colour; it has a very rich Flavour like the *Perſian Peach*. This Fruit is in good Eſteem; bears better Fruit in Standards or Dwarfs, than againſt a Wall, and is alſo a great Bearer.

12. The *White Brugnon*. This *Peach* is finely ſpotted with *red*; and will very much improve by lying by ſome Time before it is eaten. It is a very good Fruit, becomes tender and melting by lying; but is one of thoſe that ripen late.

13. The *Capucine-peach*. The Fruit is a little longiſh; it is an early one and large, and very well taſted; it was rais'd from the *Stone* of an *early Peach*, and has paſs'd through ſuch a Change in its Fruit, that it has exceeded.

Mr. *Bradley* ſays, he finds that a Change of this Kind is common to *Peaches* which are rais'd from the *Stone*; the *Stone* of a *Peach* ſometimes producing a *Pavy*, and the *Stone* of a *Pavy* bringing a Plant bearing a *Peach*. The *Pavies* are hard fleſh'd, and the *Peaches* are melting.

14. The *Chancellor-peach*, took its Name from Chancellor *Sequier*, in whoſe Gardens, in *France*, it firſt took its Birth; it is of the Tribe of the *Chevereuſe's*, but is the beſt and largeſt of them all; it was produc'd from a *Stone* of the common *Chevereuſe-peach*, and has been brought to ripen its Fruit very well in the Gardens

id.

15. The *Cherry-peach*, is none of the beſt; the Colour is *red*, the Fleſh is a little dry and hard.

16. *La Belle Chevereuſe*, is a pretty large Fruit, longiſh, of a *bright red* Colour; the Juice is of a delicate ſweet, the Tree is a very good Bearer, and has ſeveral Varieties in its Tribe.

17. The *common Peach*, is round, very *white*, and velveted. It is a Sort of Baſtard *Magdalen*, rais'd from the *Stone*. If it grows in very light Ground, it is a very well taſted Fruit; but if in ſtrong Lands, the Fleſh will be *green* and bitter. It will arrive at Perfection without the Help of a Wall, and is a great Bearer. Some *French* Gardeners call it the *Peſche de Corbeil*, that is, the *Basket-peach*.

18. The *Dreuſel-peach*, is in Form rather long than round; the Fleſh or Pulp is in Colour almoſt *red*, whence the *French* call it the *Bloody-peach*; the Skin is velveted, and well coloured; it is dry, but very agreeable.

19. The *Italian-peach*, is a Sort of *Chevereuſe*, but a little larger. It has ſome of the Qualities of the *Peach* which the *French* call *la Peſche de Pau*; but is a little more pointed, and is an excellent Fruit.

20. The *Red Magdalen*. The Fruit of this is not ſo large as that of the *White Magdalen*; but the Fleſh or Pulp is rather more delicious than that, and it bears better than the other *Magdalen-peaches*.

21. The *White Magdalen*, if it grows in good Ground, is a very large Fruit, but is ſeldom

mark'd with *red*, and is one of the beſt *Peaches* commonly growing in *Engliſh* Gardens; it is very full of a high flavour'd Juice, that melts in the Mouth freely. There is one of this Sort, which is called the *Musk'd Magdalen*, the Flavour of which is richer than the reſt. The firſt of theſe is often infeſted with *Piſmires*, and is apt to drop its Fruit; and this is common to moſt high taſted Fruits. Theſe Trees bloſſom early; and therefore, if you would have a good Crop, they ought to be skreen'd from the Severity of the Weather, while they are in Bloſſom.

22. The *Minion-peach*, is of the *Magdalen* Kind, in Form rather flat than round, is a pretty large Fruit, and is well colour'd both within and without, is well taſted, very juicy; and is accounted one of the beſt Sort of *Peaches*.

23. The *Narbonne-peach* is a very large and *greeniſh* Fruit; the Fleſh of it is a little dry and cottony, and is to be valued rather for its coming late, than its Goodneſs.

24. The *Nivette*, or the *purple Peach*, is a large Fruit, almoſt round, of a *browniſh red*, and velveted, very fleſhy, and has a good Taſte. It is both one of the beſt *Peaches*, and the beſt Bearers.

25. The *White-pavy*, is accounted a Male of the Race of the *Magdalens*; it is high flavour'd and musk'd; it comes among the firſt *Peaches*, and therefore ripens eaſily. There are alſo *red* and *yellow Pavies*, which are fit to eat at the ſame Time. And ſome curious Gentlemen are of Opinion, that every *Peach* has its *Pavy*, which they ſuppoſe to be the *male Peach*.

26. The *Perſian-peach*. This Tree bears a Fruit that is very large, but not ſo long, but rounder than the *Skin-peach*, or that which the *French* call *Peſche de Pau*. It is *red* and pointed, and is commonly bliſter'd or knotted on the Outſide. It has a delicate Fleſh, and is full of Juice, very *red* towards the Stone. The Stone is flat and ſharp-pointed. It is a very good *Peach*, and will bear well either in a Standard, or againſt a Wall.

27. The *Purple-peach*. See *Nivette*.

28. The *Roſſane-peach*. This Fruit is *yellow* both without and within. The Fleſh is ſomewhat dryiſh, about *Paris*; the Fruit is long, ſharp, and comes late; but is eſteemed in *Languedoc*.

29. The *Skin-peach*, or as the *French* call it *Peſche de Pau*. Of this there are two Sorts; the *round* and the *long*: The *round* Sort is a good *Peach*, and better than the *long*; the *long* Sort is flat, and ſubject to decay in the Middle, the Stone moſt commonly ſplitting. Theſe Trees muſt have a warm Expoſure, or elſe their Fruit will be *green* and inſipid: The male Kind of this *Peach* is very large, and is call'd the *monſtrous-pavy*; the Fruit is of a fine *red*, full of Fleſh, and requires the warmeſt Expoſure to ripen perfectly.

30. The *Royal Peach*, is a fair Fruit, of a fine *red* Colour, in Form rather long than round; but has but little Juice.

31. The *Troy Peach*; in ſome Places it is call'd the *early*, *red*, *musky Peach*; it is both larger, and higher flavour'd than the *white* Sort. It ripens early with the *Avant-peach*.

32. The *double Troy Peach*. The Fruit of this is larger and rounder than the former; has as good a Taſte, is a great Bearer, and will hold ſome Time good upon the Tree. Of this *Peach* there are two Kinds; the one of a *browniſh purple*, and the other *red*.

33. The *Venus Breaſt Peach*. This Fruit is ſomething like the *Admirable*. It is ſo call'd, becauſe it ſomething reſembles the Breaſt of a Woman, being pointed at the Top like a Nipple. It is a little touch'd with *red* on the Outſide, and the Fleſh of it is *white*. It is high flavour'd and melting, and is accounted one of the beſt Sort of late *Peaches*.

34. The *Violet Peach*. There are of this Fruit two Sorts, a large and a ſmall; it is rather long than round; the Juice of it has a vinous Flavour, its Pulp is very melting. It is accounted one of the beſt Sorts of *Peaches*, and will bear well either in a Dwarf or againſt a Wall.

35. The *late Violet Peach*. This Fruit is large and fair; and when it is a dry *Autumn* is well taſted; but if the Seaſon be wet, it is worth little, for it does not ripen 'till late in *October*. It ought always to be planted againſt a *South*-Wall.

36. The *White-peach*. This is a very tender Tree, and requires to be carefully look'd after. The Fruit is good, but has not ſo good a Flavour as the *Violet-peach*. This *Peach* has its *Pavy*, which is the *White Brugnon*; which ſee.

Mr. *Bradley* ſays, That all rough-coated *Peaches* have their Males, and the *French* call them *Brugnons* or *Bruinons*, and are larger and rounder, and their Juice is more musk'd or perfum'd; the Fleſh of them is firm and hardiſh, and for that Reaſon they require a great deal of Sun. But no ſort of *Brunions* are in ſo much Eſteem as their *Peaches*, becauſe they do not quit their Stones.

37. The *Yellow rough coated Peach*, is a large Fruit and flat, it ripens late; but the Fleſh is good, and full of Juice.

All thoſe *Peaches* which are *yellow* both within and without, are in leſs Eſteem than the reſt; becauſe their Fleſh is drier, and their Juice leſs perfum'd.

The foremention'd is a *French* Catalogue: But Mr. *Bradley* ſays, we have now about thirty Sorts in our *Engliſh* Catalogue; but there are other Sorts that private Gentlemen have rais'd from the *Kernel*, that our Nurſeries are not yet well acquainted with.

He adds, Beſides theſe there are many other Tribes of *Peaches*, as, thoſe call'd the *Preſſe*, of which there are *white*, *red* and *yellow*; the *Melocotoes*, *Mericotones*, &c. and alſo *Pavies*, which will not ripen in the colder Climates, where the Sun is not very hot in *October*, ſufficient to ſoften their Fleſh, which is hard.

Mr. *Mortimer* gives us the following Liſt: The *Admirable*, the *Alberges*, the *Arabian*, the *Arundel*, the *Bourdeaux*, the *double Bloſſom*, the *Grand Carnation*, the *Colerain*, the *Crown*, the *Eaton*, the *Iſabella*, the *Laurence*, the *Magdalen*, the *Man*, the *Modena*, the *white Monſieur*, the *Morello*, the *Mountaban*, the *Bloody Monſieur*, an excellent *Peach* very *red* without and within, the *Musk*, the *violet Musk*, the *Navarre*, the *Newington Bellice*, the *late Newington des Pots*, being ſpotted, the *moſt early Nutmeg*, *white* and *red*, the *Orleans*, the *Pavia*, the *Perprice*, the *Perſian*, the *Portugal*, the *Queen*, the *Quince*, the *Rambouillet*, the *Roman*, the *Ricket*, which has lately gain'd the Reputation of being the beſt of *Peaches*, the *Savoy*, the *Sion*, the *Smyrna*, the *Supreme*, the *Verona*, the *Uvedale*. Theſe he accounts all of them very good Fruit.

Mr. *Bradley* tells us, the *Peaches* that he covets moſt, are the *Admirable*, the *Catherine*, which comes late, and is an admirable Bearer, the *white Magdalen*, the *common Minion*, *Milets Minion*, the *Nutmeg Peaches*, for the Sake of their early Ripening, and the *old Newington Belgard*.

Mr. *Mortimer* ſays, That the Stones of *Peaches* will produce Trees which will ſometimes bear better Fruit than that out of which they were taken; and by this Means many new Sorts have been rais'd; but then the *Peach-Trees* ſo rais'd, will be longer before they bear, than thoſe that are inoculated: And again, there is an Uncertainty as to the Stones; for tho' ſome prove better, many prove worſe. *Peaches* thrive and bear beſt in a moiſt Soil, and therefore if they be planted on a dry Land, they require to be well watered.

Way of Propagation.] *Peaches* may be rais'd from the *Stones*; but the more expeditious Way, is, by *Graffing* or *Inoculation*.

Mr. *Bradley* ſays, that *Peaches* may be graffed upon the *Almond* or *Plum*; but the Nature of the Soil ought to be conſidered before Choice is made of which Stock to graft on; becauſe an *Almond* delights in a ſtrong Land a little wet; and a *Plum* loves a drier and higher Soil.

Monſ. *Gentil* ſays, a *Peach* grafted upon an *Almond-Stock*, does perfectly well in a warm, light Soil; and likewiſe in a hearty Soil, inclinable to be hot, rather than cold; when at the ſame Time a *Peach* grafted on a *Plum-Stock* in the ſame Soil, never comes to any thing. And for this the *French* Gardeners give this Reaſon; becauſe in light Soils the Sap of the *Plum* is not ſufficient for the Nouriſhment of the Graff of the *Peach*, which ſhoots forth many Wood-Branches: But a *Peach* graffed on a *Plum* will thrive beyond Expectation in a moiſt, heavy Ground; but if in that Ground it be graffed upon an *Almond*, it will only languiſh, and die away in a little Time.

Mr. *Carpenter* thinks it ſtrange that a *Peach* inoculated on a *Plum*, and planted in warm, light Soil, which is inclined to be rather hot than cold, in *France*, ſhould never come to any thing; ſince the contrary is often experienc'd in *England*, where the Climate is not ſo warm: For here *Peaches* ſucceed very well, graffed on *Plum-Stocks*, in moſt Places; tho' *Peaches* on *Almond-Stocks*, or *Peach-Stocks* are to be preferr'd before them in ſome particular, dry, light, barren Soils.

Mr, *Bradley* obſerves, That *Peaches* proſper beſt that are budded upon *Almond-Trees* rais'd from the *Stone*.

The *Almonds* ſhould be put into the Ground as ſoon as they are ripe.

He adviſes, to make Plantations of *Suckers* taken from the Roots of the *Muſcle-plum*, the *white Pear-plum*; or the *black Damask*, which are good to inoculate *Peaches* upon. As to the Time, it ſhould be about *September*; but theſe Stocks are not to be budded 'till the ſecond Year after they have been planted in the Nurſery; and this Budding is to be in *July*.

To prepare Stocks for Graffing Peaches.] Mr. *Bradley* directs to ſet the *Sweet Almond* by laying it in dry Sand, to ſprout about *Chriſtmaſs*, which may be planted in open Ground, at a Foot Diſtance, the *March* or *April* next following, according as the Seaſon is for Mildneſs: and if the Sprout or Radicle ſhould be then too long, to pinch it ſhorter, at Diſcretion: And that then the next *September*, theſe *Almond-Stocks* may be inoculated in a dry Seaſon. The *Bitter Almond*, tho' it is more hardy and will tranſplant better than the *Sweet Almond*, is by no Means good to inoculate *Peaches* upon.

He ſays, There is a Sort of tender *Almond*, that comes from *Genoa*, which is better to inoculate *Peaches* upon than the *Sweet Almond*; but theſe muſt not be laid to ſprout, but muſt be put into the Ground in the *Spring*, and they will ſprout vigorouſly, and in one *Summer* make a handſome Plant.

Becauſe *Almonds* will not bear Tranſplanting eaſily, except there be extraordinary Care us'd about them; he would have them ſet in the Nut in the Places they are deſign'd to grow; and ſo to inoculate them in the Places they were ſet; and then there is no need to run the Hazard of Tranſplanting them.

The Bud to be inoculated muſt be taken from a ſtrong Shoot of a *Peach*, and ſhould have three Leaves growing at it.

All Buds, he ſays, will take better upon the *Almond-Stock* the firſt Year, than they will the ſecond or third Year; becauſe thoſe that are older, are more ſubject to the Gum, than thoſe of the firſt Year.

If the *Almond-Stocks* you would graff or inoculate on are large, he accounts the Time of the ſecond Shoot or *Midſummer* Shoot the fitteſt Time, that the Bud may ſprout immediately, and not be choaked with the Gum, which too frequently attends a Wound that is made when the Tree is in full Sap.

He tells us, he has made it his Obſervation, that ſuch Stone Fruit-Trees, as have been inoculated near the Root of the Stock, have been much more apt to ſhoot out luxuriant and unprofitable Branches, than ſuch which have been graffed or budded five or ſix Foot from the Root. And that thoſe that have been done the latter Way, make Fruit Branches ſo plentifully, that there have been ſcarce any barren Shoots found among them. The Reaſon of this ſeems to be, that the too great Plenty of Nouriſhment is always a Hindrance to the bringing forth an Increaſe, as well in Vegetables as Animals. And he is of Opinion, that a luxuriant Growth in either ſhould always be check'd, in order to make them prolifick; and that the Length of the Paſſage, which the Sap takes in its Aſcenſion from the Roots of theſe Standards thro' the *Plum-Stock* before it comes to that Part of the *Peach*, contributes to weaken it, and take from it that Luxuriance (which if it had been permitted to puſh out Branches near the Root, where it was more ſtrong and vigorous) it would have had.

Of Raiſing Peaches from Stones.] Mr. *Bradley* ſays, That all *Peaches*, which are rais'd from *Stones*, are ſo generous to the Climate where they are rais'd, that while they are cultivated in that *Climate, their Fruit will ripen well.*

And tho' they are not all in their own Nature equal in Goodneſs, ſome being better and ſome worſe than others; Judgment will direct to uſe the Good, and neglect the B d.

The Soil.] The *Soil* ſhould rather be light than ſtrong, and rather dry than wet; for tho' the Fruit will not be ſo large in a dry Soil as in a wet, yet it will be both better colour'd and better flavour'd. And altho' a wet Soil may add to the Largeneſs of the Fruit, yet it will be watery and inſipid.

The Expoſure.] *Peaches* require the Morning or Noon-Sun, as the Fruit is diſpos'd to ripen either early or late; and thoſe that will bear Fruit in Standards or Dwarfs, ſhould not be expos'd too rudely, but be ſhelter'd, becauſe *Peach-Trees* are very much ſubject to be injured by the Wind.

Mr. *Laurence* recommends the Planting the following *Peaches* againſt a *South*-Wall, or a Wall inclining to the *Eaſt* or *Weſt*, as they follow in the Order of their Ripening; the *white Magdalen* and *Minion*, which ripen in the Middle of *September*; the right old *Newington* and *Chevereux*, which ripen the Beginning of *September*; the *Admirable*, and the *Nivet*, that ripen the Middle of *September*; to which he adds the *red Roman Nectarine*, which ripens the Middle of *September*.

Culture.] Mr. *Bradley* is of Opinion, that thoſe *Peach-Trees* which are rais'd from the *Stones*, muſt be prun'd as little as may be; they have an Abhorrence for a Knife, and it is no Matter how little any *Peach-Tree* is prun'd.

And Standards do not require pruning ſo much as Wall Trees do, and for that reaſon are not ſo apt to be invaded by Inſects, or ſubject to curl'd Leaves, weak Shoots, or Blights, (tho' they ſtand more expoſed to the Winds) nor to loſe their Branches as thoſe Trees do, that are annually prun'd. Thoſe Trees which grow freely, are always heathful, while thoſe that ſuffer the Severity of pruning, languiſh, or elſe, if they ſhoot, it is to no Purpoſe.

Standard *Peaches* bear more pleaſant Fruit, than thoſe that are planted againſt Walls, which may be becauſe the Sun takes them on all Sides. They alſo produce their Fruit later than Wall Trees do, but then they afford us this Benefit, that they ſupply us with Fruit, when our Walls are vacant.

If there be any Occaſion to prune Stone Fruit-Trees at all, it is only when they riſe too high, and then they ought to be lopped, juſt as Willows are lopped, and then they will put out large Wood, which will ſpeedily bear good Fruit, nay, and that in the ſecond Year.

He adviſes, when Stone Fruit-Trees are lopped, to plaiſter the Wounds immediately with a Preparation of Wax, Tallow, *&c.* to prevent their being diſtempered with the Gum. But theſe Trees are not ſo apt to be infeſted with the Gum, by the *Cutting of the* great Wood, as by the ſmall Wood's *being* wounded.

Of pruning Peaches.] Monſ. *Gentil* gives the following general Directions for pruning of Wall *Peach-Trees.*

To unnail them from the Wall, or untie them from the Trellis, and to take out all the dead and uſeleſs Branches, and to leave none to grow but ſuch as will produce either Wood or Fruit, and to diſtinguiſh the *Wood Branches* from the *Fruit Branches*, he gives this Direction; the *Wood Branches* have no *Buds*, but the *Fruit Branches* have *double Buds*.

II. As to the *Wood Branches*, you muſt prune them down to four or five Eyes, according as the Tree is in Vigour; and as to the *Fruit Branches*, not leave on them, when the Fruit is knit, more Fruit, than it is reaſonable to think each Branch will be able to bear.

III. At the firſt pruning, to leave the *Fruit Branches* of a reaſonable Length, becauſe when they appear to be too ſmall to bear Fruit, they are to be pruned a ſecond Time the ſame Year.

IV. When a *Peach-Tree* wants *Wood Branches* on one Side, to prune the biggeſt *Fruit Branches* ſhort, that they may leave ſome *half Wood Branches*, when the Fruit puts forth. By this Means a Vacancy may be prevented, which is a great Fault in a Wall Fruit-Tree.

V. That when there is on a *Peach-Tree* a *luxuriant Branch*, and no good *Wood Branches* near it, the *luxuriant Branch* be kept in, and pruned to the Length of ten or twelve Inches, in order to fill up the Vacancy, and to leave a ſmall Branch at the End of the pruning; for that it will attract the Sap, and produce good Branches both for *Wood* and *Fruit.*

VI. When a *Peach-Tree*, that is planted in high Grounds, leaves off to put forth new Branches, to pluck it up as ſoon as the Fruit is gathered, if it has not put forth ſome vigourous Shoots at the Bottom, that may ſerve to ſupply the Defect; and if ſo, you muſt prune it to a good Foot.

The Time to prune *Peaches* for the firſt Time, he ſays, is *March.*

But if thoſe *Peach-Trees* that ceaſe to produce *Wood-Branches*, ſtand in a hearty Soil, he adviſes not to dig them up, but to ſhorten the Stem to eight or ten Inches in *November* or *December.*

The Reaſon he gives for pruning young *Peach-Trees* to four or five Eyes is, that they may produce *Wood* and *Fruit Branches* in good Quantity the next Year. The *Fruit Branches* of *Peach-Trees* do not bear Fruit ſeveral Years together, as *Pear-Trees* do; after they have born once they periſh; nay, ſometimes they are deſtroyed before they have born any Fruit at all, by Froſts, rough Winds and Blaſts, and when this happens, they muſt be removed as ſoon as they appear to be dead.

He makes this Remark, that *Peach-Trees* are no ſooner pruned but they are in Bloſſom; and therefore they ſhould be covered to ſhelter them from the Froſts, if any Fruit be expected. Some ſet *Umbrella's* before the Trees; but the Method he uſes is to cover them with Peas Haulm, hung on the Treilage, till the *Peaches* are about the Bigneſs of the End of one's little Finger; and by this Means they thrive to that Degree, that there is a Neceſſity to pull off ſome of them to give the reſt Room to grow.

Of the ſecond pruning of Peaches.] To perform this Operation he recommends theſe five Things following.

I. That this Work be begun between the Middle of *May* and the Middle of *June.*

II. To cut only the *Fruit Branches*, in caſe of Neceſſity, and ſuch as are half dry, and this Retrenchment will ſtrengthen the good *Fruit Branches.*

III. That ſuch *Fruit Branches*, as have not knit, be pruned, and thoſe that have knit and be overladen, be eaſed.

IV. To cut Branches that are infeſted with the Gum, juſt below the Gum, and to take away all that are dead and languiſhing.

V. That if a Tree has a great many *Fruit Branches*, and but a few *Wood Branches*, then you muſt prune one of the *Wood Branches* and the largeſt *Fruit Branches*, and this will cauſe the Tree to flouriſh the better next Year.

Of pinching Peach Trees.] This pinching is a Sort of pruning, it is performed by the Nails, to three or four Eyes, upon a new tender Shoot. The Deſign of it is to hinder the too forward Paſſage and high Spring of the Sap, and cauſe the Tree to burſt out into ſeveral Eyes, and produce many Branches.

This Practice is ſaid to have been firſt invented by Monſ. *Quintiney*, with Deſign to ſtop thoſe Branches which would otherwiſe become *luxuriant*; for if it were not done, thoſe Branches would grow both too high and too big, and would run out into nothing but Wood; whereas by being pinch'd, they divide themſelves into ſeveral little inferior Branches, ſome of which being proper for Wood, ſerve to adorn the Tree, and the other become good Bearers.

This Operation, he recommends to be performed in the Months of *May* and *June*; for that if it were done after that Time, it would only be ineffectual, becauſe ſuch Branches produce no other under them, but what would prove crumpled and unfruitful in the Year following.

Of disbudding.] To disbud *Peach-Trees* is to take away the uſeleſs Branches, and alſo regular ones, to preſerve the reſt the better, and make the Trees the more beautiful. This is alſo to be performed in *May* and *June*, with a hooked Knife made for that Purpoſe.

As to the pruning of *Peach-Trees*, Mr. *Laurence* ſays, that as (after the ſecond or third Year of planting,) they are apt to put forth Plenty of bearing Branches, and you may eaſily make Choice of thoſe that are good and healthful.

If the Trees are too haſty in bearing, it is a Sign of Weakneſs, and in ſuch caſe moſt, or all, the Bloſſoms, or Fruit muſt be pulled off, and they muſt be pruned ſhort.

The main Difficulty is when a *Peach* is over vigorous, becauſe then Nature is apt to make great Confuſion, and ſome Skill is required to know what to chuſe.

Then what great Wood can be conveniently ſpared muſt be cut out, and that which is left muſt be longer, ten Inches, or a Foot, of the laſt Years ſhoot, and in two or three Years it muſt be cut intirely out, when the Wall can be furniſhed with ſmaller Wood.

You may eaſily know fruit-bearing Branches by their full and ſwelling Buds: Theſe are not generally to be permitted to be above five or ſix Inches long. Theſe are always of the weaker Sort, and of the Shoot of the wood of the Year foregoing.

All dead Wood and *yellow* ſappleſs Shoots muſt be kept out, and the beſt Time to perform this is after the hard Froſts are over before you prune, and to do it with a ſharp Knife, or elſe the ſtrings of the Bark will be left behind. He accounts a Pen-Knife the moſt proper for the ſmall bearing Branches. All *Au-*

tumn Shoots are to be rejected as unprofitable and uſeleſs.

The Trees being thus trim'd and form'd into Beauty and Order, the Fruit muſt be thinned where more than two grow together in a Cluſter; and at *Midſummer* the Shoots may be diſcreetly ſhortened, and faſtened to the Wall, tho' as to the Order, it is no great Matter, becauſe that muſt be altered the next Pruning.

The Sun muſt be permitted to come at the Fruit, as ſoon as it is pretty well come to its Bigneſs, and that will give it both a beautiful Colour and Maturity.

Of managing the Fruit on the Trees.] If you would have beautiful Fruit, if the Trees be over burthened with two great a Quantity of Fruit you muſt eaſe them. This is to be done in *May*. Among the reſt you muſt pull off thoſe that are Worm eaten, or otherwiſe blemiſhed. You ſhould pull off the ſmalleſt, or elſe their Pulp will be coarſe and flat, and their Taſte ſowr and bitter. You muſt pull off ſome, where they crowd one another; for if the Sun and Air have no Paſſage between them they will be apt to rot.

To give the Fruit a good Colour, and to help them to ripen apace, uncover the fruit, nay, even if it be the white *Magdalen Peach*; for by that Means it will take a very beautiful *Carnation* Colour. There are not, except the forward *white Peach*, *which is not* coloured at all, and the *white Andilly*, that takes it but a little.

He adviſes, about the latter End of *June*, and ſo to continue to cut off the Leaves with Sciſſars, eſpecially when the Fruit has attain'd to its proper Growth. For then being ſtript of all the Leaves, the Dews of the Night, the Rain and Beams of the Sun will have the freer Acceſs to the Fruit.

Some Gardeners, he ſays, adviſe to uſe a Syringe made for that Purpoſe, with the Head made in the Form of the Roſe of a watering Pot, and to water or ſyringe them two or three times a Day with it, during the hot Seaſon. Tho' this may give them a good Colour, he ſays, he is of Opinion, that it will hurt *Peaches* in their Quality, their Coat being very fine, and the Water eaſily penetrating into the Pulp, will marr the Flavour of the Fruit.

To know when they are at their Maturity.] This, he ſays, is when they fall from the Trees of themſelves: But to know it while they hang upon the Tree is to feel them with your Thumb and Finger; and if they yeild to the Thumbs you may conclude they are ripe; but he rather approves of letting them fall off the Trees; and to prevent them from being bruiſed by their Fall, to lay Straw half a Foot thick, at the Foot of the Eſpalier Dwarfs; and if the Eſpalier has any high Standards to hang Straw Mats, half a Foot broad, made with Edgings, whic are to be hung or ty'd with Cord the Length of the Tree, that the Fruit may drop upon it, and not roll off.

Of Planting Peach-Trees. &c.] Mr. *Clarke* ſays, *October* is the beſt Month to plant in; that you may continue to plant in *November*, *December* and *January*; but if they are planted ſo late, they will not have ſo much of the *Winter* to impregnate that vital Quality in their Roots, which is neceſſary for their Striking early; ſo that they can neither make ſo ſtrong or ſo many Shoots.

As for Planting *Peaches*, he would not have any *Apricocks*, *Pears* or *Plums* planted among them; but allows of *Nectarines*. If their Roots are numerous, he adviſes, to cut off all but ſix or ſeven of the ſtrongeſt, and to leave them at as equal Diſtances as may be, and 9 or 10 Inches long, and as for the young hairy Fibres to leave them about three Inches long; and any that are not ſo long, to cut them off half Way.

To ſet the Trees ſix or ſeven Inches deep in the Ground, with the *Bud* directly from the Wall; and to put fine Mould cloſe about the Roots for about three Inches thick, then to throw in the reſt, and tread it down, and lay the Mould about an Inch or two higher than the reſt of the Ground, for about half a Yard from the Stock.

He directs, To lay mown Graſs a Handful thick, about the Root, for the Space of three Quarters of a Yard, to ſecure the rees for the firſt and ſecond ar, from being injured by the Heat of the Sun. This ſhould be renew'd two or three Times in a *Summer*, and freſh laid on. This he adviſes eſpecially for all *South-Eaſt* or *South-Weſt* Walls; and as for the *North*, they have no Occaſion for any. As for Watering the Trees, it may be done through the Graſs, and there will be Occaſion to do it the ſeldomer; becauſe the ſeldomer you water, the leſs porous the Ground will be; and the Graſs lying ſo cloſe that neither Sun nor Wind can force their Way through, one Watering will laſt two Months.

As for the Winter *Pruning*.] Thoſe Trees that are planted in *Winter*, he adviſes, To cut off their Heads the latter End of *February*, and not to leave more than four or five Eyes or Buds. As to Trees of the firſt Years Growth, they are not to be prun'd that *Summer*, unleſs they ſhoot out within a Foot of the Ground ſomewhere round the Stock. The ſecond Year, he adviſes to cut the Head down again, and not to leave above four or five Shoots, and thoſe at as regular Diſtances as is poſſible, and in Length about ſix or ſeven Inches. The Tree being thus kept down, and the Roots growing ſtrong, it will the third Year put forth a great many Shoots, which perhaps may fill the Tree equally at five Inches Diſtance, and for near a Yard in Length: But if the Tree does not put out a ſufficient Number of Shoots, however lay the loweſt on each Side a Foot from the Ground, and the other Shoots at ſuch equal Diſtances as you can, according to their Number. Theſe Shoots will, the fourth Year or ſooner, put forth from their Sides bearing Wood ſo plentifully, that you will be oblig'd to take off ſome fruitleſs Branches (in Nailing them up) at four or five Inches Diſtance. All Shoots, he ſays, ought to be nail'd up, at four or five Inches Diſtance; and the Trees ſhould at their firſt Pruning be nail'd up in the Form of a Fan, and conſtantly kept in that Form, advancing about nine Inches a Year. And if any Branch runs into Wood too large for the reſt, it ought in the Pruning Seaſon to be taken off as near the Bottom of the Tree as may be.

When the Tree is ſeven or eight Years old, you ſhould take it from the Wall either every Year, or once in two Years, and cut out all the great Wood; and you muſt order thoſe Branches that are left, ſo as to fill up the Spaces at as equal Diſtances as you can, which have been made by the cutting out the great Wood. And this will preſerve the *Peach-Tree* or *Nectarine* in its full Blow, and with vigorous Shoots for more than thirty Years, and always at one Size, and in one Shape, or at leaſt with a very little Difference.

After the Tree is ten Years old, you muſt not cut off whatever ſhall break out near the Foot of the Tree (not in the Stock) but you ſhould conſtantly nail ſuch Shoots, to produce new Wood; and this will make Amends for the taking out of the old; the Neglect of which deſtroys many *Peach* and *Nectarine* Trees.

This alſo ought to be obſerv'd in the *Winter*-Pruning, not to cut off the Shoot (that became barren by Bearing the Year before) too near the Branch; but you ought to leave the Width of a Five-Shilling Piece, becauſe from that Place frequently Shoots put out, which will prevent Nakedneſs.

He ſays, That it is not the Nature of *Peaches* and *Nectarines* to exceed ſeven Foot in Height, and yet to keep themſelves fill'd with young bearing Wood, according to Direction; and tho' indeed he has ſeen Trees fifteen Foot high, yet they were naked at the Bottom, and have had pitiful, long and barren Arms.

He adviſes, That the loweſt Branches ſhould not be laid lower than within a Foot from the Ground; becauſe if there be any Fruit lower, the Daſhing of the Rains prevents it from coming to Maturity, or elſe it is eaten by the Mice.

He is of Opinion, That a Tree ſhould not be allow'd to ſhoot from its moſt extreme Parts above nine Inches in one Year.

The Summer *Pruning*.] The Trees ſhould be look'd over about the Middle of *June*, and all the great Shoots that are cloſe to the Bottom ſhould be taken out, and all the fine ſmall Wood ſhould be laid in. You ought alſo to pull as many Leaves from the Shoots as will thin them, and let the Light in to the Fruit.

If it happens that a Tree becomes naked at the Bottom on either Side, for any Space, by Blaſts, you ſhould put a Bud in at the Place where the Shoot is wanting ; altho' the Wood, being five or ſix Years old, will not of it ſelf fill up the naked Places ; and altho' the Bark being too thick, and on the main Body of the Tree Budding will not take there, yet it will take well enough upon the Arms.

Altho' it is a Practice among ſome Gardeners, at this Seaſon, or earlier, to cut off all thoſe Branches as grow beyond the Fruit ; he only approves of this Practice where the Tree ſhoots abundance of good Wood. The proper Time for Pruning theſe Trees, he thinks, is earlier, and that is, when large, fruitleſs Shoots are grown to the Length of five or ſix Inches, which if the Tree be not vigorous, ſhould be left about three Inches long ; but if it be vigorous, then they ought to be taken off cloſe : And being thus order'd, the Sap having there a powerful Draught, theſe Shoots will that *Summer* put forth ſeveral others to the Advantage of the Tree afterwards.

Mr. *Laurence* ſays, In *May* you may ſafely plaſh a ſtrong Branch of a *Peach* or *Apricock* that ſhoots directly forward ; and you may ſo diſpoſe the Branch as to fill a void Place with weak and conſequently bearing Wood.

As to Pruning *Peaches*, a *certain* Author ſays, It ſhould not be perform'd 'till the *Bloſſoms* are ſo much ſwell'd, that the *bearing Bloſſoms* may be diſcover'd from the *falſe Bloſſoms* ; which may be done to ſome Trees in *February*, while it is not fit to be done to others 'till *March*.

That which is call'd a *falſe Bloſſom*, he ſays, Mr. *Fairchild* has diſcover'd to be a *male Bloſſom*, which is differently made from the *Fruit Bloſſom*. And therefore, whereas that Gentleman ſays, that the *falſe Bloſſoms* never bear Fruit, and therefore ſhould be cut off, he ſays, That there was little then known as to the Generation of Plants. And he is of Opinion, That it it as neceſſary they ſhould be left on the Trees as the others, and are as uſeful to the Bearing of the Trees as the *falſe* Bloſſoms of *Cucumbers*, *Melons* or *Gourds*.

But as to the Pruning of tender *Peach-Trees*, he thinks that ought to be delay'd 'till the Sun has gain'd Strength ; becauſe they are too apt to ſhoot too vigorouſly ; whereas the Pruning of them late prevents their too great Luxuriance. And if they are prun'd when the Froſts have any Force, it would endanger them.

The Top, or bearing Branches may be prun'd according to their Strength ; and this is the Way to have good Wood, and good Fruit : You may leave the longeſt Shoots a Foot long or more, and thence good Wood may be expected to fill the Wall ; for a *Peach-Tree* often wants it, and ought to be fill'd up with young

Shoots as much as may be; for it is only they that bear Fruit.

A middle-ſiz'd Shoot is uſually furniſh'd with Fruit-Buds, and ought to be ſhorten'd according to its Strength; and you ought to cut the ſmalleſt Fruit-Buds which have Bloſſoms upon them, to a convenient Length, that the Fruit may be large.

After the *Peaches* have been prun'd in the *Spring*, the Trees ſhould not be touch'd with a Knife for all that Year, except ſuch Shoots as cannot be laid to the Wall. A *Peach-Tree* cannot bear more than the *Spring*-Pruning, without declining in its Health.

He does not approve of Cutting down thoſe Trees nurs'd againſt Walls, once in four Years, to make them renew their Wood; a Tree ought to fill the Part of the Wall allotted it; and it is the Fault of the Manager if it does not do it, unleſs it be diſtemper'd at the Root.

If cloſe Pruning be allow'd at all, it is during the firſt two or three Years after Planting, in Order to furniſh well the Bottom of the Wall; but for all this Pruning is practis'd, yet we frequently find it has not the deſir'd Effect: For too many lead the Shoots upright, which ſhould be ſpread Horizontally, and ſo leave the Wall naked at the Bottom; and ſo in a few Years they ſay the Wall is too low for the Tree.

Some are ſo favourable at this firſt Pruning, as to ſpare the Branches that *have Bloſſoms on them; but this Practice is* unreaſonable, for we never have a good or laſting Tree that is ſuffer'd to bear ſo early.

Mr. *Bradley* having ſpoken of the *Early-musk'd-peach*, the *Troy-peach*, the *Double Troy-peach*, the *Capucine-peach*, the *Alberge*, *Yellow*, *Red* and *Purple-peaches*, the *White* and *Red Magdalen-peaches*, ſays, they would all ripen without a Wall, and might be brought to bear upon Standards, altho' they might be caus'd to drop their Fruits by being ſhaken by the Winds. But if they were train'd in the Manner that Mr. *Herron* has mention'd about *Pears*, by placing Arbour-Poles in ſuch a Manner as to form the Shape of a Bell the wrong Side uppermoſt; and to twiſt the young Shoots of the Tree about the Frame, like a Screw; he is of Opinion, it might be kept full of Wood every Way, and there would be no Occaſion for Pruning, which is apt to bring Gum, and canker the Trees, even to the Deſtruction of Stone-Fruits.

All Stone-Fruit is apt to gum by being prun'd and wounded; and the more a Tree gums, the ſooner it decays; and therefore he approves of the before-mention'd Contrivance, becauſe in the Winding of Trees thus like a Screw, they need not be prun'd; and ſo Stone-Fruit Trees might be long laſting.

He ſays, He has ſeen a *Standard Peach-Tree* which had not been prun'd, which was grown as large as a good *Orchard Apple-Tree*, which bore good Fruit.

By the Method before-mention'd, *Peach-Trees* would be ſecure both from the Knife and Gum; their Bloſſoms might with Eaſe be defended from the Froſt, nor would they be infeſted with Vermin, ſuch as *Piſmires* and the *Flye*; becauſe having that Freedom, would preſerve it both from Wounds and Gums.

Mr. *Bradley* ſays, It is common to *Peach-Trees* to have their Leaves curl'd up in the *Spring*, and to be cover'd up with a kind of *Honey Dew*, and are invaded by a great Number of *Ants*; but it is not the *Ants* that cauſe the Shrivelling of the Leaves, they come there to feed upon little Inſects, that are harbour'd on the Back of the Leaves, and wound the Parenchymous Parts of them, from whence they ſuck the Juices of the Plant; and ſo by frequently Wounding it, cauſe ſo many Scars, that the Leaves curl and become gummy.

He tells us, He ſaw in *June* ſeveral *Peach-Trees* and one large *Apricock-Tree*, which had been remov'd, with all the Fruit upon them; and they were in very good Health, and the Fruit of the *Peach-Trees* ripen'd very well.

To preſerve Peaches *from Blaſting Winds.*] He is of Opinion, That Matting keeps them too tender; and is but ſeldom of much Advantage to them. And whereas ſome ſmoke them with wet Straw, and think that thereby they make the Bloſſoms more tough; he has try'd both Ways without Succeſs; and that Trees have born as well, which have not been ſo manag'd.

He adds, That he order'd his Gardener to fill a Water-Pot half full of Water; and the Head being on, to caſt it ſemi-circularly all over his Trees, every Evening, the laſt Thing he did; and experienc'd, that this fenc'd againſt the Froſts as well as Winds: And obſerv'd, That after a rimey, freezing Night, the Knots were ic'd over, invelop'd from the Winds, and theſe afterwards ſtood.

How to order the Fruit *while Growing.*] When *Peaches* are about the Size of a Piſtol-Bullet, at the latter End of *March*, or the Beginning of *April*, they ſhould be thinn'd, leaving not above three in a Knot, and one of theſe muſt be taken away, when they have arriv'd at half their Growth, and ſo order'd (if it may be) that the two that are left may not touch one another; for if the Seaſon proves rainy, the Water that lies between them not being ſoon dry'd up, will rot them, or tack them.

To try their Ripeneſs, he does not approve of Pinching them with the Finger or Thumb; but either to ſmell to them if they be in Reach, or to touch them gently with the Finger, and if they are ripe they will fall into the Hand; but if they grow out of Reach, he would have them to fall as they ripen.

He adds, That going down a Walk, he found near a Dozen Trees, the Fruits of which were dimpled and ſpotted, as if they had had the *Small-pox*; and this was occaſion'd by the Freedom

Ladies had taken in the Abſence of the Gardener.

There are various other things relating to the Management of *Peach-Trees*, that you may find under the Article *Apricocks*, *Nectarines* and *Plums*, which are alſo proper to the *Peach*, which I ſhall not here repeat but refer to them.

17. PEAR-TREES.

The Name and Original Place.] THE *Pear* ſeems to have taken its Name from *Pyrus*, becauſe of the pyramidal Form of its Fruit. The beſt Sorts of this Fruit were brought by the *Romans* from *Alexandria*, *Greece*, and the Countries thereabouts; and it is probable, if we have any of the ſame Sort now in Being, in *England*, that the latter Kinds were brought from the moſt *Southern* Places.

Various Kinds.] Of *Pears* there is ſo great a Variety that it would be tedious, if poſſible, to enumerate them all.

I ſhall only endeavour to ſpeak of the good Sorts.

The ſeveral Species of *Pears* are of different Qualities, ſome are melting and buttered; others crackling or juicy; and others dry and odorous.

The Time when the firſt of them come in, or begin to ripen, is commonly in *July*, and from that Time we have *Pears* for uſe all the Year; for ſome Sorts of the late *Winter-pears* will keep well till Nature ripen freſh Fruit.

These Pears following ripen in July.

1. The *Admired-pear* is round like that Sort called the *Onion-pear*. The Juice of it is extreamly ſweet, and high flavoured; and the Tree is an extraordinary Bearer.

2. The *Admired Little John* is a leſs Fruit, and longer than the former. It is ſo called becauſe it ripens about St. *John*'s Day.

3, The *Admired Ruſſet of Tours*, or the *Cyprus-Pear*, is almoſt round, the Colour of a browniſh Grey; the Fleſh is firm, and the Juice ſugared; and it has a rich Flavour.

4. The *Amber-pear*, or *Queen's-pear*, or *Muſcat Robert*, is a little *Pear* ſhaped like the *Muſcat* but larger; its Colour is very *yellow* and ambered. It has a very rich Flavour, and is a very good Bearer, and makes a very handſome Tree. The Wood is *yellow*.

5. The large and ſmall *Blanket-pear*; they are both accounted good *Pears*: The ſmall Sort are called the *Pearl-pears*; they are both of a rich Water, *i. e.* their Juice is richly flavoured: They are *yellow*, and will keep well. The Tree makes a good Appearance, ſhoots ſtrong, and has large Leaves.

6. The *Musked Drone-pear*, it is a Sort of early *Muſcat*. The Tree is a good Bearer: The Fruit is round and has a high Flavour. The Fruit, when it

is full ripe is apt to rot at the Head; and therefore ought to be eaten a little greeniſh.

7. The *Musked Fig-pear*; the Fruit is large, for a forward Sort, and has a rich Flavour. It has very large and ſtrong Wood, and rough Leaves, and larger than ordinary. It is called by the *French Belliſſime*, by Reaſon of its great Beauty, being of a fine *yellow*, ſtreak'd with *red.* This Tree bloſſoms about *Midſummer*, for a ſecond Crop, and ſometimes brings that Fruit to Perfection in *September* and *October*; and thence probably it was called the *Fig-pear* for bringing, or attemping to bring two Crops in a Year.

8. The *Haſting-pears*; they follow the *Muſcats*, the firſt ripe. The Fruit is round, of a *yellow* Colour, and has a pretty good Flavour: When fully ripe it quickly grows meally, and rots like the other Summer *Pears*, and therefore ſhould be eaten before it is full ripe. The Tree bears well.

9. The great *Haſting-pear*, is finely painted of a yellow and red Colour. The Tree bears in Abundance, and in Cluſters; they are better to be eaten green than when they are full ripe; for they will not keep.

10. The *White Haſting-pear* is a large whitiſh *Pear*, and ſo melting, that it is by ſome called *Summer Buree*,

11. The *Ladies Thigh* is a long Fruit, and when it is full ripe of a *reddiſh Grey* Colour; *has a firm* Fleſh and very ſweet Taſte, *is a good* Pear, and will ſome Time.

12. The *Magdalen-pear* is in Form almoſt round, in Colour rather *green* than *yellow.* It is large for a forward *Haſting-pear*, and has a pretty good Taſte. If it be too ripe it grows meally, even while it is upon the Tree.

13. The *Little Muſcat-pear* is one of the firſt ripe *Pears*, the beſt, and by far the richeſt flavoured of any of the little forward Pears, of which there are ſeveral Kinds. This Tree brings its Fruit in Cluſters, and much better in Eſpaliers than Standards, or in the open Air.

14. The *Great Muſcat-pear* is larger than the former, requires the Aſſiſtance of a Wall, but does not bring its Fruit in Cluſters, as the *Little Muſcat* does.

15. The little Baſtard *Muſcat.* This tree bears well in any Situation; it bears its Fruit in Cluſters, but is not ſo richly flavoured as the two former.

16. The long ſtalked *Muſcat-pear*, is remarkable for its long Stalk; is pretty large, is a good Fruit, fair to the Eye, and the Tree is a great Bearer.

17. The *Ruſſet-pear* is very much like the common *Ruſſelet*; its Juice is very delicious, and near as good as that.

18. the *Supreme-pear*, the *great Jargonel* or *Gibberiſh-pear*, or the *Fig-pear.* This Fruit is large and long, of a *reddiſh yellow* Colour. The Juice is very ſweet, and it is not apt to be ſtony. When it is too ripe it is meally; and therefore ſhould be eaten before,

Theſe *Pears*, which Mr. *Merlet* ſays come in *July*, come ſomething later in *England* than *France* about *Paris*; but the Difference is ſcarce above ten Days.

The Pears following are fit for eating in Auguſt.

1. *Adam's Fleſh*, or *Prince's-pear*, this Fruit is ſomething like the *Rouſſelet*; the Juice has the Flavour of Roſe Water, and very highly: It will keep well a pretty While without rotting. The Tree is a good Bearer.

2. The *Admiral-pear* is in Form rather flat than long, of a *reddiſh* Colour; has a delicate tender Fleſh, and very juicy; is never ſtony; and the Tree is a good Bearer.

3. The Summer *Bergamot-pear* is a large *green* Pear, ſoft and melting; it is in many Reſpects like the *Autumn Bergamot*, but has ſome particular Excellencies.

4. The great *Bergamot-pear* is in Form almoſt round, in Colour *yellow*, is one of the beſt Pears for Plenty of Juice and rich Flavour. The Tree is a great Bearer.

5. The *Bloody-pear*: The Fruit is ſomething like the *Valley-pear*; is red within quite to the Core; but is rather a Curioſity than valuable at the Table. It is a Pear that will not keep long, and ſhould be gathered before it be ripe.

6. The *Musked Bon Chrêtien*, or Pear without a Skin, is ſomething rounder and ſmaller than the Summer Sort. The Skin of it is *yellow*, and the Fleſh pretty hard; its Juice is very ſweet and delicious, and it is accounted one of the beſt Pears. This Pear ſeldom comes to any Thing on a *Quince* Stock, and therefore ought to be grafted on a free Stock, and then too it will laſt but a few Years. It proſpers better from a Bud than from Cleft-grafting; for the Cyon commonly languiſhes till the Inciſion is intirely healed up.

7. The good *Brute* has its Name from the Coarſneſs of its Fleſh; but it is a very juicy Fruit, that is ſweet and high flavoured. It is a *green* Fruit, and ſhould be ſoon eaten. The Wood of the Tree is whitiſh and farinacious, or powdered.

8. The *Crimſon-pear* is a ſmall Fruit, a little longiſh, ſomething reſembles the *Blanket-pear*, but is thinner; the Juice is very ſweet, and the Tree is a great Bearer.

9. The *Franchipane-pear* is a ſmall, green, longiſh Fruit, has extreme ſweet Juice and delicate.

10. The *Grey-pear*, called alſo the *Sharp Sword-pear*, becauſe its Wood is prickley; The Fruit is of a *greyiſh* Colour, and of the Pear Form, neither long nor round; it is a little melting or buttered; the Juice is ſweet and pleaſant.

11. The *Double-headed-pear*, This Fruit grows very large and good upon Dwarfs, is crackling and full of ſweet Juice; it will ripen well after it is gathered and kept.

12. The *Gargonelle* is a long and reddiſh Pear, a little dry and ſtony; but the Juice is rich, high taſted, and of a good Flavour.

13. The *Jeſſamine-pear* is of a middling Size, rather longiſh than round; it is ſubject to be ſtony, but its Juice is rich.

14. The *Licheſrian* is a longiſh Fruit, of a ruſſet Grey, is ſoft and melting, and the Tree is a great Bearer.

15. The *Lumbardy*, or *Milan-pear*, is a large long Fruit, has a high musked Flavour, if it is gathered a little before it is ripe.

16. The *Melting-pear* of *Breſt*. It is in Form rather long than round; in ſome Things it reſembles the *Double-headed-pear*, which is ſomething red and more round than this; it has a good rich Juice, the Fleſh is rather brittle and crackling, than melting or buttered, and therefore not rightly nam'd.

17. The *Muſcat* of *Auguſt* is flat and round, the Fleſh is hard, is of a high musked Flavour, is accounted one of the beſt Sorts. There are two Sorts of this Fruit, the larger and the ſmaller; the ſmaller is harder and drier than the large, which has the richeſt Musk of any Pear. The Fruit comes in Cluſters.

18. The *Onion-pear* is either great or ſmall; they are round, flat and yellow, ſhap'd ſomething like Onions, are musk'd and high flavoured, but are ſomewhat apt to be ſtony. The Trees e excellent Bearers.

19. The *Orange-pears*. Theſe are of ſeveral Sorts; the *common Orange-pear*, this is a large handſome Fruit and very good; the *musked Orange-pear* is of a ſmaller make, and ought to be eaten before it is full ripe, becauſe it is apt to rot at Heart. Nor ſhould the reſt of the *Orange-pears* hang too long upon the Tree, before they are eaten, becauſe they are ſubject to loſe their Goodneſs.

20. Pan's *Perfumed-pear* is a pretty large Fruit, rather long than round, like the green ſugared Pear: The Juice of it is extremely ſweet, and of a rich Flavour.

21. The *Perfum'd-pear*, or *green Muſcat*, is long and greeniſh, has a musked Juice. The Tree is a fine Tree, and a great Bearer, tho' it is a crackling, brittly Pear, yet the fleſh of it is tender: Conſidering it is a Summer Fruit it keeps pretty well.

22. The *Auguſt Perfum'd-pear* is longiſh, large, and of a good Taſte. It is greeniſh and ſpotted.

23. The *Roſe-water-pear* is grey and round, the Juice ſweet, and the Stalk very ſhort. The Juice has the Flavour of Roſe-water.

24. The *Great Rouſſelet* from *Rhemes* is generally eſteemed one of the beſt Summer Pears; is buttered and melting, has a musked Flavour, bears its Fruit much larger, and fairer in Eſpalier than in open Ground.

25. The *Spaniſh-pear*; the Fruit is large, long in ſhape, yellow and melting, and ought

to be gathered before it is ripe, to give its *Buree* or buttered Quality. The Tree bears abundantly.

26. The *Valley-pear* is a watery Fruit, not much in Eſteem, ſomewhat harſh now and then.

27. The great *Mouth-water-pear* is a large, round Fruit; the Stalk is thick and ſhort; greeniſh and melting, of a pretty good Taſte; but if it is not gathered a little before it is ripe, it will grow meally.

28. The great *White-pear* is a large Pear, round about the Head, and long and ſlender towards the Stalk; it is white in Colour, and very melting: It quickly decays, and therefore ſhould be eaten as ſoon as it is ripe. The Tree is handſome; makes large Shoots, and has very large Leaves.

September Pears.

1. The *Angel-pear* is ſomething flatter. and more melting than the *Salveati*, but the Juice if not quite ſo ſweet, nor the Flavour ſo rich.

2. The Summer *Bon Chrêtien* is a large, yellow Fruit, of a longiſh Make; the Fleſh is tender, full of fine ſugared Juice. The Tree is a good Bearer, eſpecially about the Tops of the Branches, which therefore muſt not be cut off.

3. The red *Buree*, or red buttered Pear is a large Fruit, long, but not pointed; of a good Colour: It takes its Name from being buttered and melting, the Juice *is ſugared and highly* flavoured, and ripens after it is off from the Tree, like the other *Buree*; and therefore is to be gathered before it is ripe. It is accounted the beſt Pear of this Month, as the *Rouſſelet* is of the Summer Pears, and the *Bon-Chrêtien* is of the Winter ones.

4. The *Grey Buree*, or *Grey-buttered-pear*; this Fruit is tart, and more melting than the other.

5. The *Green Buree-pear* is the leaſt melting of any of the *Burees*: The Juice of it is flatter and the Flavour not ſo rich.

In order to keep the *Buree* Pears a long Time in eating, they muſt be let alone to hang upon the Trees till they drop. Some of theſe Trees may be planted in a *Weſtern* Aſpect againſt a Wall.

6. The white *Buree-pear* is a fair large good Fruit, of a Citron Colour, and is by ſome called the *Citron* or *Lemon-pear*. It is very melting.

7. The *Chambrette-pear* is a large, longiſh Fruit, the Fleſh very agreeably melting. It is alſo called the *Winter Chambrette*.

8. *God's-pear*, or *la Pere de mon Dieu*, is a Fruit that is pretty handſome and indifferently good, of a yellowiſh red Colour, juicy and not apt to be ſtony; the Tree is a good Bearer, and the Fruit ripens upon the Tree, at ſome Diſtance one from another.

2. The *Roſe-pear* is a large, round Fruit of an Onion Make; the Fleſh is a little hard, but has

a very good Roſe watered Juice. it has a long and ſlender Stalk.

10. The *Salveati-pear* is a pretty, large, round and flattiſh Fruit, fair and handſome, of a fine yellow Colour, will keep pretty well; the Fleſh is melting, the Stalk is long and ſlender,

11. The *Vertue Longue*, or the *Autumn Mouth-watered-pear* is a long Fruit of a greeniſh Colour; when ripe, is melting and has a very rich Juice, eſpecially when it grows in a Land that is rather dry than wet. This Fruit grows better upon a free Stock than upon a Quick Stock.

October Pears.

1. The *Amadotte-pear* is of a flat Form, has a rough yellow Coat, is dry, and has a high Flavour. When it is wild is full of Thorns, but when cultivated on a *Quince* Stock, it loſes its Thorns, but keeps them when on free Stocks; but the Fruit that grows on free Stocks is the beſt, moſt juicy and melting, and may be numbered among the beſt Sorts. This Fruit. as well as other dry and perfumed Fruits, is much better upon dry Soils, than upon wet and moiſt Lands; thoſe Trees, on the latter, bringing their Fruit larger, but watery and inſipid.

This ought to be obſerved in regard to all melting and buttered Pears, which are but ſeldom very high flavoured, that they be planted in light Soils; and it has been obſerved, that the *Buree-pears* which are melting like the *Thorn-pears*, &c. are much improved by being grafted upon the *Amadotte*; for that the Juices, or Sap, of the *Amadotte*, is muſked and richly flavoured, and the *Buree*, or melting Pears which are grafted upon it, are perfumed by it.

2. The *Belle and Bonne-pear* is a fair and good Fruit, in Form long and pointed, in Colour of a greeniſh red; the Fleſh is tender and delicate, it preſently decays, and therefore muſt be eaten juſt in time.

3. The *Autumn Bergamot-pear* is a large green Fruit, a little rough coated, of a flat Form and very melting. It ripens after gathering, and then changes its green Colour for one that is yellowiſh; it will keep pretty well.

In order to make the Trees give good Wood and produce fair Fruit, it ought to have the Benefit of the riſing or ſetting Sun, but it muſt by no Means be expoſed to the violent Heat of the *South* Sun; for that is apt to make the Wood canker, and the Fruit ſmall and full of Cracks.

This Fruit ſeldom anſwers Expectation upon Dwarfs; but if they be made Dwarfs, the Shoots muſt be prun'd long, if it be expected that the Wood ſhould be well nouriſhed and profitable. As for thoſe that are planted to the ſetting Sun, the Fruit indeed will not be ſo much perfum'd, but then the ſweet or ſugared Taſte, which is the Glory of moſt Winter Fruits, will make amends for the Want of the high Flavour.

4. The *Baſtard Bergamot* is a large, flat Fruit, ſtreaked with *grey*; the Fleſh is brittle, of a pretty good Water: The Tree bears like Ropes of *Onions*, and they ſhould be gathered a little before they be ripe.

5. The *late Bergamot* is more eſteemed than the former, becauſe it will keep longer; but as for its other Qualities, they are the ſame; it is called the *Eaſter Bergamot.*

6. The *Musk'd Bergamot-pear* is a ſmall dry Fruit, very high flavoured, a great Bearer, and is excellent for ſweet Meats.

7. The *Dauphin-pear* is a ſmall, round, yellow, rough Pear and one of the moſt melting Sorts; it holds fit for eating till *January*, if they are gathered late, for they will hang upon the Tree after the Leaves are fallen, and till the hard Froſts begin.

8. The *Switzerland Bergamot-pear* is a Fruit that is flat and very melting, ſtreak'd with green and yellow. The Wood is the ſame with the *Autumn Bergamot*, but is a greater Rarity. This Tree is a good Bearer, requires a Wall, but little Sun. This is not only the forwardeſt but the beſt of the *Bergamots.*

9. The *St. Dennis* of *Angers-pear* is a large, long and yellow Fruit, ; its Fleſh is brittle and crackling and its Juice richly ſugared.

10. The St. *Frances-pear* is a very large, long and yellow Fruit, a good baking Pear, but ſomething of the harſheſt to eat raw.

11. The *Little Lard-pear* is a Fruit of a middle Size, almoſt round, but of an unequal Shape, rather green than yellow: This Fruit is one of the moſt melting and delicate; the Tree is a good Bearer.

12. The *Monſieur John*; this Fruit is of ſeveral Sorts, the *white*, the *gilded*, and the *grey*; the *white* ripens firſt; the Fleſh of it is more tender than the reſt; but its Juice is leſs ſugared, and the Whiteneſs ſeems to proceed from Diſtemper in the Tree; for when the Tree is very vigorous the Fruit has a better Colour.

13. The *gilded Monſieur John-pear*, or *John Dory*, is a Fruit whoſe Juice is more richly ſugared than the former, and is not ſo apt to be ſtony as the *grey* Sort, which comes later, and will keep pretty well, and has an extraordinary rich Juice.

14. The *Ronville-pear* is a large, long, green Fruit; but grows yellow in the ripening; it is very good to bake, and is extream good roaſted in the Embers.

15. The *Thorn Roſe-pear* is of two Sorts; the earlieſt ripe is a Fruit rather long than round, fair and large, intermixed with *yellow* and *grey*; it has a ſtrong roſey Flavour; the latter Sort is ſomething like the *Portail pear*, is flatter and has leſs of the roſey Flavour than the forward Sort.

15. The *Vine-pear*, or *Lady's-pear* is a round Fruit, of a *greyiſh brown* Colour, very melting, having an extraordinary rich Juice: It has a very long Stalk. The Fruit muſt be gather'd before it is full ripe, or elſe it will grow meally, and rot quickly.

Pears good in November.

1. The *Ambrette-pear*, is a round Fruit, of a *greeniſh grey* Colour, when it grows in ſtrong, ſtiff Ground; but when in ſandy Land, is *whitiſh*; it is a very melting Fruit, and of a rich Water. It is a Wilding, as may be diſcover'd by its thorny Wood; yet it is one of the beſt *Pears*.

If it be grafted upon a *Quince-ſtock*, it bears better Fruit than upon a *Free-ſtock*; becauſe the latter renders the Fruit ſubject to be ſtony; and as it retains more of the Wilding, the Fruit is of a greener Colour than the other: But the *Quince-ſtock* ſoftens and rectifies it. This Fruit is every where in high Eſteem.

2. The *Berry-pear*. This Fruit is ſmall, almoſt round, very *brown* and melting. The Water is extremely rich and vinous, ſtill retaining ſomething of the Wilding it was taken from. It is an extraordinary Bearer, producing its Fruit in Cluſters.

3. The *Bergamot Creſſane-pear*, is a large, flat Fruit, of a *yellowiſh grey* Colour. The Fleſh is very melting, and the Juice richly ſugar'd, and of a vinous Flavour. The Fruit is rare and *excellent; and is* much better *on the Free-ſtock* than the *ce-ſtock*.

4. The *Champagne-pear*, or dry *Martin-pear*, is rather long than round, of a good Colour, and ſtreak'd with *red* and *grey*. Its Water is ſugar'd and high flavour'd; but it is a little apt to be ſtony. The Tree is a great Bearer; the Fruit holds good about three Months, and is every where in high Eſteem.

5. The *Ebergement-pear*, is a very large Fruit; it has a ſweet Juice. The Tree is a great Bearer, bearing its Fruit the Length of the Shoot, or like Ropes of *Onions*. This Fruit does much better upon the *Free-ſtock* than upon the *Quince-ſtock*; for if upon the latter, it ſoon grows meally, and therefore ſhould be eaten rather a little *green* than full ripe.

It is to be obſerv'd, That thoſe Fruits that are ſubject either to rot ſoon, or grow meally, are much mended by Graffing them on *Free-ſtocks*; becauſe the *Quince* (which produces a dry, harſh Fruit) communicates its Harſhneſs and Dryneſs to thoſe Fruits that are graffed upon it: And alſo thoſe Sorts of Fruits ought to be gathered ſooner than others, before the Sap ſlackens in its Motion; for then the Fruit dries and rots ſooner than thoſe which have had leſs Time upon the Tree.

6. The *Jealouſy-pear*, is a large Fruit reſembling the *Pound-pear*; but is of a *yellowiſh* Colour, and is more pointed towards the Stalk: Its Water is ſo richly perfum'd and ſugar'd, that it may with good Reaſon be ſaid to excite Jealouſy among the

Pears of this Seaſon. If this *Pear* be ſuffer'd to be too ripe before it is gather'd, it will be too Melting, and will keep but a little while; for moſt of the melting *Pears* rot ſoon, if they hang too long upon the Tree: But this Sort of Fruit will keep a long Time, if graffed upon a *Free-ſtock*; but it will ſoon decay when upon a *Quince-ſtock*.

7. The *Musk'd Lemon*, or *Citron-pear*, is in Form almoſt round, finely colour'd with *red* and *yellow*; it has a very high Flavour, and a little dry. This Fruit muſt be watch'd, and taken when it begins to ſmell; for then the Water of it is ſofter, and delicater to the Palate. It proſpers better in moiſt Grounds than in dry, ſandy ones; as moſt of the dry, musk'd, or perfum'd *Pears* do.

8. The *Louiſe Bonne-pear*, is a Fruit of a very long Make, of a Pearl-like Figure: It is *whitiſh*, and if it be not eaten too ſoon, is very Melting.

9. The *Maltha-pear*, or *Prieſt-pear*, is a Fruit almoſt round, ſtreak'd with *grey* and *brown*: The Stalk is thick and ſhort; the Juice ſweet, and of a Roſe-like Flavour. It laſts a long Time fit for Eating; and altho' the Fleſh is crackling and brittle, yet it is tender and delicate.

10 The *Marquis-pear*, is a large, *green* Fruit, which grows *yellow* as it ripens. It reſembles the *Winter Bon Crêtien* in many Things. It has a long, ſlender Stalk; and the Fleſh of it is very *melting and butter'd; the* Juice is ſweet and richly musk'd, ſomething ſugar'd like the Water of the *Monſieur John*. The Tree is a good Bearer, and ſo vigorous, it is always well furniſh'd with Wood. It is accounted one of the beſt *Pears*.

11. The *Autumn perfum'd-Pear*, is a pretty large and long Fruit, very much musk'd, and high flavour'd, for one of the *Buree*-Race, or ſuch as have a melting Fleſh.

12. The *Winter perfum'd-pear* is a large and round Fruit; well colour'd with *yellow*; is an excellent Fruit for Baking; and the Tree is an excellent Bearer.

13. The *Rouſſeline-pear*, is ſomething like the *Champagne*; but is a little more pointed, and of a *yellower* Colour. It has a long, tender Stalk, like the *Vine-pear*: It is one of the beſt *Buree-pears*; it is delicately musk'd. This Fruit for its musk'd Flavour, and melting Fleſh, is ſomething like the *Rouſſelet*. Some Years this Fruit is dry and high flavour'd; and others, melting, and of a different Reliſh. If it were more conſtant in its Ripening and Perfection, it might be accounted the beſt of *Winter*-Fruits.

14. The *Winter Saffron-pear*, or as ſome call it, the *Orange-pear*, is a large, round Fruit, of a *grey* Colour; and the Fleſh is very melting, and of a *yellow* Colour. The Tree is a good Bearer. The Fruit will keep good a pretty while; and is well eſteem'd. It proſpers beſt on a *Free-ſtock*, rather than on a *Quince-ſtock*.

15. The *Virgouleuſe-pear*, is a large, long, *green* Fruit, which grows *yellow* as it ripens; and is one of the firmeſt *Burees*; and alſo very good. It will keep good and fit for the Table a long Time; but muſt not be kept cloſe, nor laid upon *Deal*-Shelves or Straw. Nor indeed muſt any of the *Buree*, or melting *Pears*; becauſe they are apt to take the Taſte from any thing they touch. They may be laid upon Shelves of *Oak*, cover'd over with Plaiſter of *Paris*. You may give theſe *Pears* what Flavour you pleaſe, by Perfuming Shreads of Leather, and laying the *Pears* upon them, and they will ſoon take the Scent. The Tree is the faireſt of all *Pear-Trees* as well by Reaſon of the fine *Verdure* of its Leaves, as for the Plenty of its Sap, which puſhes forth large and vigorous Shoots. The *Virgouleuſe* will ſooner make good a Deficiency in a Plantation, than any other good *Pear*; ſo that if a Tree dies or languiſhes, if you plant a *Virgouleuſe* in the Place, it will ſoon ſupply it.

If this Fruit be gather'd before it be ripe, it is apt to wither. It loves rather to be cultivated as a Dwarf than a Standard; for the Fruit being but very tenderly join'd to the Tree, it will be broken off by a very little Wind. If it be ſuffer'd to hang too long on the Tree, it loſes its Excellence, and will hardly be brought to melt; but then it may be kept the longer.

It may be planted either in *Eſpaliers*, or Walls that lie to the *Eaſt* or *Weſt* Sun; but never to the *South*, for that will make the Tree turn *yellow*, and crack the Fruit; nor will the Fruit keep ſo well.

There is one Sort of this Fruit that is very rare; the Wood and Fruit are both *red*, and it is fit for eating ſomething later than the other, and will keep good 'till *February*; but it is not ſo melting and butter'd as the other *Virgouleuſe*. This Sort ought to be graffed upon the common *Virgouleuſe*, if you would have the Fruit large and in Perfection.

December Pears.

1. The *Arch-duke-pear* is a round, *yellow* Fruit, like the *Lard-pear*, but is later and much better. It is melting, and has a ſweet, agreeable Juice, and is one of the beſt *Pears*.

2. The *Bery*. See *Vilandry*.

3. The *Braſs-pear*, is ſo call'd becauſe of its Colour: It is much like a large *Bon Chrêtien*; a fair, large, baking Fruit, and richly flavour'd.

4. The *Winter Buree-pear*, is a large, *green* Fruit, of a long oval Shape. The Fleſh is like the *Buree*-Race; but it is better bak'd than raw.

5. The *Colmar-pear*, is a large Fruit, ſomething reſembling the large *Autumn Bergamot*, but is a little more pointed. It has a butter'd Fleſh, but not very melting. The Juice of it is very ſugar'd and rich. The Tree is a good Bearer, and ſhoots plentifully.

fully: It laſts the beſt Part of the *Winter*.

6. The *Franc-Real-pear*, is a large Fruit, almoſt round, of a *yellowiſh* Colour, and accounted one of the beſt Baking *Pears*. There is alſo a ſmall Sort of this, which is round and *yellow*, and very dry; but well taſted: It has a large Kernel, the Fruit will keep a great while, and the Tree is a good Bearer.

7. The *St. Germain-pear*, is a large and long Fruit; has a butter'd and melting Fleſh, pretty much like the *Virgouleuſe*. It is an extraordinary good Fruit, both for Quality and Keeping, and holds a long Time in Eating. The Tree makes a handſome Appearance, and bears well. The Wood is inclining to be Thorny, the Leaves are long and narrow, and are inclin'd to ſhut up like the Leaves of an *Orange-Tree* that wants Water. This Fruit has all the good Qualities of the *Virgouleuſe*, and none of the bad ones.

8. The *Winter Monſieur John*, is ſomething like the common *Monſieur John*, but is clear and more pointed. Its Fleſh is brittle and crackling, without melting at all in the Mouth: Its Water is richly ſugar'd, and the Fruit holds good a long Time.

9. The *Moor's-pear*, is of a *black brown*, colour'd with *red*; a little pointed in its Make. The Juice is ſomething like that of the *Monſieur John*.

10. The *Naples-pear*, is a *yellow*, rough-coated Fruit, flat, and the Fleſh is of the *Buree-Kind*. The Tree is a great Bearer; it bears a very long and narrow Leaf, and curl'd in a particular Manner.

11. The *Portugal pear*, is not a very large Fruit; but is high flavour'd, and very agreeable.

12. The *Satin-pear*, is a Fruit almoſt round, *white*, and ſmooth coated. The Fleſh is very melting, the Water very much ſugar'd: and it will keep good three Months. The Tree produces Plenty of both Wood and Fruit every Year, which is ſomewhat particular in a *Pear-Tree*.

13. The *Long Winter Thorn-pear*, is a very melting Fruit, and of a very rich Water. It in ſome Things reſembles the *Thorn-pear* of *Autumn*, but is ſomething longer and larger. It does not grow meally in Ripening. It will keep good a long Time, and is one of the beſt *Pears*.

14. The *Viandry* or *Berry*, is a pretty large Fruit, almoſt of an oval Form; in Colour *yellowiſh*. The Fleſh is very melting, and well flavour'd, eſpecially when it grows on a ſandy Soil. The Fruit keeps well, the Tree makes a handſome Appearance, and is a good Bearer; the Leaves are very long, and narrow pointed. The Fruit is one of the beſt of this Month.

15. The *Wonder of the Winter*. This *Pear* is roundiſh, but ſometimes of an unequal Figure. It is of a *greeniſh* Colour, like the *Bergamot*; but is ſomething richer in its Flavour. It is one of the beſt melting *Burees*.

Pears good in January.

1. The *Bon Chrêtien Doré*, or *Gilded Bon Chrêtien*, which is the tendereſt and firſt ripe. The *green Bon Chrêtien*, which has the moſt Juice, and laſts till *April* or *May*, when cultivated upon a *Free-ſtock*. It turns *yellow* as it ripens. The beſt of theſe *Pears* is of a Bottle-Shape, tho' there is a long and round Sort.

Theſe Sorts will not bear being expos'd in too hot a Place, for fear of drying and ſcorching their Leaves; which ſtops the Sap, and hinders the Progreſs of the Fruit.

Thoſe Kinds of Trees are very much annoy'd with a ſort of *Flies*. The Way recommended to defend the Trees, is to waſh all the Parts of them, in *Autumn* and *Spring*, juſt when the warm Weather comes in, with fair Water, from Time to Time; and ſome do it with a Decoction of *Rue*, *Wormwood*, and ſuch bitter Herbs. Others ſpread a Cloth at the Foot of the Tree about Break of Day, and with a tender Bruſh ſweep the *Flies* down upon the Cloth, and then deſtroy them; for they can't take Wing early in the Morning while the Dew falls.

If theſe *Pears* are gather'd in fair Weather when they are dry, and if they are gather'd in the Decreaſe of the Moon, they will keep the better, and laſt a long Time without Rotting.

2. The great *white Winter Burre-pear*, which bears a *whitiſh Fruit*, *long* and thick ſhap'd, ſomewhat like the *Winter Bon Chrêtien*; it is very melting, and full of a ſweet and agreeable Juice.

3. The St. *Francis-pear*, is very large and long, of a brown Colour, has a rich musked Juice; is never ſtony, and is an excellent baking Pear.

4. The little Winter *Muſcat*, which is a round yellow Pear, whoſe Fleſh is a little dry, but very well taſted.

5. The Winter *Orange-pear* is a large, round Fruit, green upon the Tree, but turns yellow as it ripens. It has a ſweet and agreeable Juice; and remains good a great while.

6. The *Prince's-pear*, which is a good baking Fruit, large, of a beautiful *red* Colour, has an agreeable Juice, and is not ſubject to be ſtony.

7. The *Pound-pear* is a large, good baking Pear.

Pears good in February.

1. The *Bequeſne-pear* is of a browner Colour, and longer pointed than the *Denville*. It keeps well, and is a good baking Pear.

2. The *Holland Bergamot* is a very large, fair round Fruit, *green* in Colour, has a butter'd Fleſh, but the Juice is not ſo rich as other *Bergamots*.

3. The *Bergamot Bugg*, is a large Fruit, almoſt round, but narrow towards the Stalk; of a *yellowiſh green* Colour. The Fleſh of it is butter'd and melting; it keeps well, but is apt to grow muſty, if kept too cloſe,

and takes the Flavour of any thing that touches it, therefore muſt have Air, and be kept like the *Vergouleuſe*. It does not well ſucceed, in Dwarfs; but planted againſt an *Eaſt* or *Weſt* Wall, bears excellent Fruit.

3. The *Clove-pear*, which is a round Fruit of a greeniſh red, has a firm Fleſh, and a very ſweet and well taſted Juice.

4. The *Dagebort-pear*, which is a pretty large Fruit, long and red, and bakes well.

5. The *Donville-pear* is a large, long ſhap'd Fruit, of a yellowiſh red Colour.

7. The *Martin Sire*, a long green and red Pear, has a richly perfumed Juice, and keeps a long time.

8. The great Winter *Musk-pear*, or the *Orange Musk*, or *Magdalen*, is a round, green Fruit, but turns yellow as it ripens: It has a highly musked Juice; the Grain of the Fleſh is a little coarſe, but it is one of the beſt Pears of this Seaſon.

9. The *Paſtoralle-pear* is a long yellow Fruit, has an extraordinary good melting Fleſh, is fit for eating a long Time; but is better or worſe, as the Seaſon of its Growth is dry or wet.

10. The *Winter Rouſſelet-pear*. This Fruit is pretty like the Summer *Rouſſelet*, but rather longer, and greener, having leſs red in it, than thoſe, and a little more pointed towards the Stalk. It has a richly ſugared Juice, and of a vinous Flavour. The Wood of the Tree is red, and the Leaves are like the Summer Sort.

11. The *Stergonette-pear* is a Fruit of a middle Size, long and brown; the Fleſh is like the *Buree*, and it has an extreamly rich Juice for a late Pear.

Pears *good in* March *and April.*

1. The *Angelick-pear* is very like the *Bon Chrêtien*, as long, but not ſo thick, and is late in eating. It has a tender Fleſh and ſugared Juice; it is an half *Buree*.

2. The *Cadillac-pear* is a Sort of white, pound Pear, large and flat, fit for baking; the Tree has large Wood and Leaves.

3. The *Chaumontel-pear* is a large Winter *Buree*, ſomething redder than the *Autumn Buree*, is a melting Fruit, and has a rich and ſweet Water.

4. The *Eaſter Burgamot-pear* is green in Colour, has a melting Fleſh, and the Juice is as good as that of the *Autumn Bergamot*.

5. The *Fontarabia-pear* is a large Fruit, rather long than round, of a yellow Colour, ting'd with red: It is an admirable baking Pear, and may be eaten raw, the Fleſh never being ſtony.

As for the keeping of Pears in Winter, we ſhould allow them all the Air that may be in dry Weather; but the Windows ought never to be opened in damp, foggy Weather.

In moderate Winters all Fruits haſten more to Maturity, and ſo rot ſooner, even the *Virgouleuſe*, unleſs they be kept airy, and then they will keep well.

Theſe Fruits that hang long upon the Trees keep the longeſt; and if Fruit fall from the Tree, or have been gathered too ſoon, they fade the ſooner; but then their Fleſh taſtes more of the *Buree*.

Mr. *Laurence* recommends the following beſt *French* Pears to be planted againſt the beſt Wall and Aſpect you can give them, which will not be ripe till ſome time after they be gathered.

The Summer *Bon Chrêtien*, which ripens about the Beginning of *September*.

The Winter *Bon Chrêtien*, which ripens the Beginning of *March*.

The *Spaniſh Bon Chrêtien*, which ripens in *November*.

The *Buree du Roy*, that ripens the End of *September*.

The *Vertue Longue*, that ripens in *October*.

The St. *Germain*, that ripens in *November*.

The *Ambert* that ripens, in *December*.

The *Colmar*, that ripens in *December*.

The *Chryſan*, that ripens in *December*.

The following, he ſays, are good Pears, and will do if planted on *North-Eaſt*, or *North-Weſt* Walls.

The Orange *Bergamot*, that ripens in *September*.

The St. *Katherine*, that ripens in *September*.

The *Rouſſellet*, that ripens in *ptember*.

The *Pound-pear*, and the black Pear of *Worceſter*, for baking; and theſe will alſo do well for Dwarfs.

The following he eſteems peculiarly good for Dwarfs. The *Swan's Egg*, the *Bergamot*, and the *Windſor*, that ripens in *October*.

Mr. *Mortimer* ſays, *Pears* are beſt grafted the ſame Way as the *Apple*, and upon the wild *Pear-ſtock*, raiſed from the Kernels, for Standards: But if they be for Dwarfs, or Wall-trees, the *Quince-Stock* is looked upon the beſt: But then they ought to be planted in moiſt Ground. They will alſo grow if they be grafted on the *white Thorn*, but not ſo well as if grafted on the former: You may alſo bud them on their own Kind; and if you graft Winter *Pears*, or any Sort of later Fruit, on the earlieſt Pears, or the earlieſt Fruit of the Kind, it will very much forward and help them. You may graft them when the Bloſſoms are on. *Pears* will proſper in cold, hungry, ſtony and gravelly Land, where *Apples* will not bear ſo well.

All Perſons who are curious in Fruit ſhould always be provided with a Number of Free Stocks to ſupply their Plantations. This Nurſery ſhould be raiſed from Kernels; for the Suckers which are taken from the Roots of Trees are good for nothing.

When you graft a young or old Tree, the Fruit of which was not agreeable, graft it upon on every Arm or Branch, as equally as you can; for if ſome of them be left ungrafted, they will draw away the greateſt Part of the Sap, and rob the Grafts, (*i. e.* ſuch as are grafted in the Clift.) Budding and inoculating does not harm a Tree at all; but a Bud will ſhoot and thrive, as well as any other Part of a Tree.

Thoſe *Pears*, that have a *Buree* or melting Fleſh, ſhould be grafted upon *Quince Stocks*; but you ought ſeldom, or never, to uſe a *Quince Stock* for the dry Fleſh Pears; for that the Juice of the *Quince* being harſh, dry and rough, will add to the Dryneſs of thoſe Fruits, which are grafted upon it; whereas the Dryneſs, which the *melting Pears* will take from the *Quince* Stocks, will help the Fruit as to keeping; for that all Fruits, that are grafted, are more or leſs influenced by the Juice of the Stocks they are grafted on.

The *Portugal Quince*, he ſays, is better than any other Kind; it has a fair tender Fruit, that in a good Year may be eaten raw; the Sap is ſtrong, and the Grafts which are upon it bring large Fruit.

If you have a Tree that is a good bearer, but runs ſo much to Bloſſom, that the Shoots and Fruits are ſmall, if you take a few Buds from the bearing Shoots of it, and inoculate them upon large vigorous Shoots of ſome other *Pear-Tree*, theſe Buds will bear the ſecond Year, and produce very large Fruit, having plenty of Sap to *nouriſh it*: Or if the Buds of the leſs bearing Kinds be put upon good Bearers, the Nature of the bearing Tree will far over-rule thoſe Buds, that they will produce a Abundance of Fruit: But in doing this it will be proper to aſſort the Fruits, as not either to bud or graft a Winter Pear upon a Summer Pear; becauſe the Sap of the Summer Pear-tree will decline before the Winter Fruit can arrive at its full Growth, but *Autumn* Pears ſhould be inoculated on *Autumn* Pears, and Summer Pears on Summer Pears, and ſo on.

But tho' inoculating old Trees may laſt for a few Years, yet young Trees ought to be interplanted early that they may be in a Forwardneſs for bearing when the old ones decay.

Monſ. *Gentil* adviſes, that when you make uſe of Boughs of Pear-trees, you ſhould cut the Grafts from thoſe that grow ſtrait up, and not from thoſe that are on the Sides, or that hang down, becauſe they will have the ſame Situation that they had on the Tree, from whence they were taken. If the Bough you cut off for your Graft be ſtrait, or one that grows upright, the Shoot of each Scutcheon, which you raiſe from that Bough will alſo be ſtrait; whereas on the contrary if the Shoot of a Scutcheon is taken from a Bough that hung down, or grew on one Side, it will hang down, or grow on one Side: But if you can have no other but ſuch, then you ſhould drive a Stick at the Foot of the cold Ground, they would not have, but be inſipid.

You ſhould leave the Shoots of *Winter* Fruits at a greater Diſtance aſunder, than *Summer* Fruits; for the *Summer* Fruits do not want the Sun ſo much as the *Winter* Fruits do, and therefore you may leave them pretty full of Wood.

As for thoſe Trees that have made but weak Shoots, you ſhould prune them betimes; to be ſure not later than *January*; becauſe Pruning draws the Sap: But vigorous Trees ſhould be prun'd later in the Year, in *April* or *May*; and this will make them produce leſs Wood and more Fruit.

The Strength of Trees ought to be conſider'd before they are prun'd; and they ſhould be cut into Shape according to that Proportion, both for their Shape and producing good Fruit.

Some People imagine weak Trees ought to be prun'd in the Increaſe of the Moon, in order to cauſe them to give ſtronger Wood; and that ſtrong Trees ſhould be cut when the Moon is in the Decreaſe, to cauſe them to produce leſs Wood and more Fruit.

Whereas ſome Trees are more apt to ſhoot into Wood-Branches than ſome others are; ſuch ſtrong ſhooting Trees muſt be prun'd, ſo as to leave the Shoots long; and you ſhould let their Shoots remain longer or ſhorter according to their Strength: But *you ought to ſhorten* thoſe Shoots *which have any* great Quantity *of Bloſſom-Buds* upon them, that the Buds which are left, may nouriſh the Fruit the better, and that the Tree may make good Wood.

For the firſt or ſecond Year a Tree is planted, it ſhould be prun'd very ſhort, to cauſe it to ſhoot or fling into Wood: And if it does not come into a bearing Way the ſucceeding Years, but keeps on ſtill to ſhoot ſtrong and unprofitable Branches; then if they are prun'd at all, you ought to leave every Shoot very long, or rather not prune at all. This is common with the *Rouſſelet*, the *Bergamot*, and the *Virgouleuſe*. If this be done, the Tree will certainly ſet to Bearing, and the Sap will not be ſpent to no Purpoſe. But when the long Branches are knotted with bloſſoming Buds, a great many of them may be broken off, according as the Branches are in Strength.

There is no *Pear* that will bear Pruning ſo ſhort as the *Bon Chrêtien*; for then it will produce large Wood, and upon large Wood Fruit may be expected.

In Pruning, Regard ought to be had to the Soil and Climate: If the Soil be light and ſandy, there Fruit is generally good, (tho' it is ſmaller) than in a wet or cold Soil; then they ought to be but very little prun'd, for the Wounds made by Pruning thoſe Trees that are planted in very hot and dry Land, will not ſo eaſily recover; and in the drieſt Lands *Pear-Trees* periſh intirely by being over-prun'd.

In a wet and cold Soil, the Fruit

is not ſo good, nor ſo well colour'd; and of Conſequence will not be ſo well flavour'd: Therefore the Shoots of ſuch a Tree muſt be prun'd free and open, that the Sun's Rays may paſs freely between them.

Dwarf-Trees are to be prun'd ſo as not to leave any Branches or Shoots too near the Ground; for the Fruit that ſhall grow upon them, will have but little Taſte, and will quickly rot. The Shoots and Branches of Dwarf-Trees ſhould be proportioned on every Side as equal as may be, that the Trees may not be overſet, nor the Roots ſtrain'd by the Wind.

Mr. *Laurence* ſays, no Tree requires the exact and careful Obſervation that he has laid down, ſo much as the *Pear-Tree*: (See thoſe Rules under the Articles *Barrenneſs*, *Apricocks*, *Pruning*, *&c*) For in free and rich Soils, it is apt to be unruly and ungovernable, and runs altogether into Wood and luxuriant Branches.

Tho' it is commonly too lofty for a Wall, yet for the Nobleneſs of ſome Kinds of Fruit it produces againſt a Wall, it will be worth while to humble it, and keep it in Order.

To do which, (beſides what Directions of his that are to be found under the aforeſaid Articles) it is his Practice to plaſh the moſt vigorous Branches of *Pear-Trees*, cutting them more than half through near the Place from whence they ſhoot; the doing of which does effectually *check its Vigour, and ſo* renders it more diſpos'd to make weaker Shoots, and to form bearing Buds.

This Method of Plaſhing, he recommends as very uſeful as to avoiding Barrenneſs, when there is an awkward Branch, which you would make Uſe of to fill a Vacancy; for by this Means it may be reduc'd to what Order you pleaſe, ſo as both to anſwer your Deſign, and to produce Fruit.

The *Summer* Pruning of *Pear-Trees*, he ſays, begins in *May*, by cutting off the Shoots of this Year that come forward, to half an Inch; and taking out intirely the reſt in the Middle, where they crowd one another: But if there be Room, they may be left at the Entrances, or let alone till *Winter*.

He directs, That all perpendicular Shoots in the Middle of Dwarfs be reduc'd to the Length of half an Inch, that they may put forth weaker and bearing Branches.

As to Grafting the *Pear* upon a *Quince-ſtock*, he allows, that it does effectually cure too great Luxuriance in Growth, and may (for a Time) anſwer the Deſign of making them bear quickly; and ſo may be worth the while of thoſe who have a great deal of Room, to have ſuch: But they neither make ſuch handſome regular Trees, nor bear ſuch fair, large Fruit, nor are ſo long-liv'd as thoſe that are grafted on a *Pear-ſtock*.

As to the Diſtinguiſhing the *bearing Buds* of a *Pear-Tree*, he ſays, this you may do eaſily in

November, as ſoon as the Leaves are off, for that they are much fuller and more ſwell'd than the others are. Theſe you muſt take Care not to cut off when you prune. You muſt take away all falſe Wood, which ſome call Water-Shoots; theſe are diſtinguiſhable in that they have their Eyes at a much greater Diſtance than ordinary one from the other.

The *Bon Chrêtien-pears* require more Room to ſpread and extend themſelves againſt a Wall than any other; and therefore they ought to have both Elbow-Room and Height enough, if you expect them to bear. If they are confin'd by ſhort Pruning, they will grow knotty, and full of Wood without Fruit. And he has ſeen *Summer Bon Chrêtien-pears* bear Plenty of noble, large Fruit, between twenty and thirty Foot high.

Of Thinning Trees.] When a Tree is ſet full of Fruit, if you would rather have fair Fruit than a great Quantity, cut off the weaklieſt and moſt ſickly about the Middle of their Stalks with a Pair of *Sciſſars*. And if a Tree tends to ſhoot abundance of falſe Wood, when it is in its firſt and ſecond Sap, then pinch off the falſe Wood while it is tender; but do not cut it while the Sap is flowing; for cutting the Tree will cauſe it to run into Wood, and the Bloſſom-Buds to miſcarry, which the ſecond Sap would fill. Theſe Bloſſom-Buds, here meant, are form'd by the *firſt Sap*, between the Months of *April* and *June*, and between *July* and *October*, are fill'd by the ſecond Sap, for Opening and Bearing the next Year.

He adviſes, to begin to top and pinch off the too vigorous and uſeleſs Buds of Trees in *May*, eſpecially thoſe that are in Eſpaliers, or againſt Walls; and by this Means the uſeful Shoots will be the better nouriſhed.

Of Gathering the Fruit.] Our Practice in this ought to be directed according to the Degree of Heat or Cold of the Climate we live in. In hot Countries Fruit ought to be gather'd ſooner than in cold Countries, becauſe the Sap has perform'd its Work ſooner. In cold Climates the Sap is longer in performing its Work: Therefore the Fruit muſt hang longer on the Tree to ripen; and it will alſo keep longer. He takes this for a Rule, that the longer Fruit is drawing the Sap, the longer it will laſt.

Of propagating Pears.] Mr. *Bradley* ſays, That *Pear-Trees* ſhould be grafted in *March*, or inoculated about the latter End of *June*; and either upon *Wildings* or *Kernel-Stocks*. And alſo that ſuch, as are taken from about the Roots of old Trees and planted in Nurſeries, oftentimes are good for Standard-Pears; becauſe they put the Graft or Bud forward, and tend to make large Trees.

As for *Quince-ſtocks*, he recommends them for Dwarfs, low Walls or Eſpaliers; becauſe it is the Nature of them to confine the Growth of the Graft or Bud; and ſo do not only produce Fruit ſpeedily, but alſo near the Ground.

The Soil.] *Pear-Trees* delight moſtly in a wet Earth, inclining to Clay, and ſome have proſpered very well in the ſtrongeſt Sort of *blue* Clay, which is accounted the worſt of Soils. If one of theſe ſort of Trees ſeems in a decaying Condition, lay Carrion or Blood at the Root; for thoſe Things have a wonderful Effect upon all Sorts of Vegetables: So alſo will Bits of Leather, Shavings of Horn, Wool, or the Entrails of Fowls, or the like Parts of living Creatures (being laid to their Roots) have the like Effect upon moſt Vegetables.

As to pruning.] *Pear-Trees* take no Pleaſure in the Knife; eſpecially thoſe that have been grafted on *Quince-ſtocks.* But if it be neceſſary to cut off any large Branch, the Wound ſhould be cover'd with a Compoſition of Tar, Roſin and Pitch, as ſoon as the Branch is cut off; otherwiſe the Wound will be apt to diſtemper the Tree.

As to Dwarf-pears.] Mr. *Bradley* does not much approve of *Dwarf Pear-Trees* in a Garden, becauſe they take up too much Room, and are too much confin'd by their Figure to produce a good Quantity of Fruit; for it is ſcarce poſſible to have both together in Perfection. He gives an Inſtance of a fine Seat, where the Gardens did abound with *Dwarf Pear-Trees*, which tho' they were tolerably well prun'd, never bore any Quantity of Fruit till they were laid into *Eſpaliers*, and afterwards bore very plentifully *every Summer.*

Of Wall Pear-Trees.] He adviſes to plant *Wall Pear-Trees* ſo that they may be ſecure from the *Eaſt*; for altho' the *Pears* in their Kind ſhould be both good and hardy, yet the *Eaſtern* Blaſts of the *Spring* will make their Rinds thick, and fill the Fruit with ſtony Knots.

Pears in Eſpalier.] *Eſpaliers* of *Pear-Trees* ſhould be about ſix Foot high, that there may be Room enough to lay the Fruit-bearing Branches into them. He recommends, as moſt proper for *Eſpaliers*, the *Summer-pears*, that is, ſuch whoſe Fruits ripen upon the Trees; becauſe they are more apt to bear near their Root than *Winter-pears* are, which if they ever do, is but ſeldom; and therefore it will be very improper to plant the *Bon Chrêtien*, and other-like laſting Fruits, either in Hedges or againſt Walls, if they are not three or four Yards high.

Gathering.] That Fruit, which does not ripen upon the Trees, ought not to be gather'd before *Michaelmaſs*, and then only in a dry Day. They ought to be laid (taking Care not to bruiſe them) ſingly upon Shelves, covered with dry Moſs if it may be had, or elſe Wheat-Straw; and they ſhould be allow'd Air, by opening the Windows of the Room till the Froſts come.

You may preſerve choice *Pears* that ripen late in the Year, by Hanging them up by the Stalks to the Cieling of a Room, and you may alſo wrap them in Paper.

What *Pears* ſoever are grafted upon *Quince-ſtocks* come forwarder, and ripen much ſooner, than thoſe which are grafted upon *Free-ſtocks.*

Mr. *Heron* acquaints Mr. *Bradley* with an Improvement in managing *Dwarf Pear-Trees*, by Training them circular Ways, after the manner of a Screw, ſo that a Tree forty Foot long ſhall not riſe above the Height of five Foot. The Method is, to carry the Tree round a Frame of ſmall Poles ſet into the Ground narrower at the Bottom and ſloping outwards, ſo as to be wider at the Top, in the Shape of a Bell; and as the Tree advances in Growth, to tie it gently to the Frame, with woollen Yarn, and ſo to raiſe it a little as it winds about, and by that Means it will not want Pruning. This Way of Training, he ſays, conſumes the Sap, and makes them very productive; and when the Frame is decay'd, the Tree will keep in its Station, and look very well. He directs, to pinch off the Shoots at their firſt Beginning, if any offer to ſpring up from any of the Side-Branches in the *Summer*. And in the *Spring* when a froſty Night may be expected, he adviſes, to make a plain Frame upon a large Hoop, and to cover it over with Canvas or pitch'd Cloth, and ſo to cover the whole Tree, which will preſerve the flouriſhing Buds, and their Knitting 'till the Danger is over; and will alſo keep them from cold Rains and Winds in the *Spring* of the Year.

Mr. *Bradley* tells us, That Mr. *Fairchild* had remov'd a large *Bon Chrêtien Pear-Tree* in *July*, with all the Fruit upon it; and it was the next Year in very good Health, and bloſſom'd as fair as other Trees; and that he only took from it a few Branches which would not lie againſt the Wall.

Mr. *Chapman*, a Nurſery-man near *Hoxton*, has a *Pear-Tree* that bears Fruit twice a Year; and never fails in the worſt of Years to ripen two Crops of good Fruit, which have no other Difference than the Time of their Ripening, except the Fruit of the ſecond Crop may be ſomething ſmaller than that of the firſt.

Mr. *Bradley* informs us, That the Owner preſented him with a Branch of that *Pear-Tree*, upon which there were ſeveral of the firſt Fruit almoſt full grown, and ſeveral of the ſecond Crop that were juſt then ſet; and that theſe both were upon one ſingle Shoot, which grew from Buds that were plac'd alternately upon the Shoot: And that they were not diſtinct Shoots that bore only Fruit of one Crop, nor ſingle Shoots which produc'd only thoſe of the other Crop; but theſe Kinds of Shoots were in every Part of the Tree; for elſe it would not be any more than what is commonly done by Grafting; by which ſeparate Branches upon the ſame Tree may be made to produce different Fruit, ripening at different Seaſons.

He adds, That he was inform'd by the Owner, that he propagates this Tree by Grafting; and that thoſe he has grafted from it, are in all Reſpects like it.

He adds; That tho' there are Inſtances of ſome Trees which naturally bear Fruit twice, and now and then three Times a Year, as the *Fig*, the *Glaſtenbury-Thorn*, and the *Vine*; yet it is a very rare Thing if the Fruit of both theſe Seaſons ripens in *England*, becauſe that depends upon the Seaſon being very favourable. However, their attempting to bear Fruit twice in a Year, he thinks is an Indication, that their native Place lies between the Tropicks, where there are annually two Seaſons, which equally do the Office of *Summer*; and therefore it is natural for Plants of ſuch Climates both to bloſſom, and to produce Fruit at both thoſe Seaſons.

He has made this Obſervation, That whatſoever Place all Sorts of Trees and Plants come from, they retain their own natural Seaſons of Growth, let the Diſtance of their own native Climate and ours be what it will: And this they attempt to do, altho' (unleſs they be hous'd) they often ſuffer in it.

He alſo ſuppoſes that thoſe Plants, which ſeem naturally to bear twice a Year, are compos'd of Veſſels which are of different Kinds, and conſequently do contain different Kinds of Juices; that the one Sort takes a longer or ſhorter *Time to digeſt the Juices than the other* does; and therefore this Double-bearing in different Seaſons may be brought about. The Juices of thoſe Veſſels which lead to thoſe Buds that bloſſom in the *Spring* of the Year, are at that Time ripen'd ſufficiently to compleat the Bloſſoms; but that thoſe Veſſels which lead to the Buds that open their Bloſſoms in *July*, are at that Time (when the other are ſufficiently ripe) crude and unripe, and ſtand in Need of ſome Months more to ripen them for producing Fruit.

As to the Propagation of this Double-bearing Tree by Grafting, he obſerves, That a Graft has three or four Buds to it, and ſo may contain all the Qualities in it that are in the old Tree; or if there were but one Bud of it to ſhoot, it is probable that the Veſſels of a different Sort, that muſt be in the Wood of the Graft, may in Time find Means to ſhew their Diſpoſition; for that every Veſſel, that is in a Plant, has ſome Correſpondence with the reſt. Yet he queſtions, whether if a ſingle Bud of this Tree were inoculated on a Stock, it would afford any more Veſſels and Juices, than ſuch as are neceſſary to produce Bloſſoms of one Seaſon, without ever attempting to bloſſom in another.

But if, by making the Experiment, it ſhould be found, that one Inoculation will bloſſom in *April*, and another in *July*, it will diſcover a great Myſtery in the Nature of Plants.

He ſays, That there is a *Pear-Tree* in Norfolk, which bears different Kinds of Pears, the on a *Winter-pear*, and the other a *Summer-pear*, both Sorts upon one Twig, and proceeding from the ſame Bud; and ſome of the *Pears* partake both of the *Winter* and *Summer* Kind.

He alſo gives us a Relation of a *Pear-Tree* in *Moorfields*, that ſtanding in a Place which ſeem'd to have been a Garden, ſome Houſes being building near it, the Lime was brought and laid to be ſlack'd near the Tree, at the Time that it was full in Bloſſom, in *April*, and promiſing good Fruit; but it did not produce any Fruit that *Summer*, but loſt its Leaves ſooner than other Trees. That this Slacking the Lime was repeated three or four Times a Week, and ſometimes touch'd the Stem, and reach'd five Foot high. This was continued till *Auguſt*, at the End of which, a freſh Set of Bloſſoms began to open, and were as fair and as promiſing of Fruit, as commonly is ſeen in *April*; and that Side of the Tree that moſt Lime had been ſlack'd on, had in *October* (that Year he wrote his Monthly Treatiſe for *October*) the greateſt Share of Bloſſoms.

He recommends the following *Pears* as very good, and deſerving to be propagated and cultivated:

The *little Muſcat*, which is the firſt ripe; the *Catherine-pear*, the *Windſor*, the *Cuiſſe Madam*, the *Summer Bon Chrêtien*, and *Summer Bergamot*, the *Orange-Bergamot*; the firſt *Buree du Roy*, which is exceeding good, the *Bergamot*, the *Chryſan*, the *Grey-Rury*, the *Lemon-pear*, the *Meſſire-Jean*, the *Leſchaſſeries*, the *green Sugar-pear*, the *Winter Thorn-pear*, and the *Virgoleuſe*; and the *William-pears*, ſome of which will continue Part of *December*, at which Time alſo the *St. Germain* and *Martinſec-pears* alſo begin to ripen, and will laſt good till the *January* following, and then their Place is ſupply'd by the *Bon Chrêtiens*. Theſe are Eating-*pears*; as for the Baking-*pears*, he eſteems the *Wardens*, the *Black-pear of Worceſter*, and the *Spaniſh Bon Chrêtien*.

He likewiſe informs us, that having accidentally, after he had gathered his *Winter-pears*, laid ſome, of two or three Sorts, of them upon the Pavement, in his Conſervatory, or Stove, (they were the *Winter Bon Chrêtien*, the black Pears of *Worceſter*, and the *L'Epine d' Hyver*) there having been ſome Sand laid on the Pavement, that there had been ſeveral Fires made under the Floor, and by that time they had lain about two Months, he perceived the Pears to ſend out a very agreeable Odour, and cutting one, found it as good as any he had ever eaten abroad, rich in its Flavour, and melting, having in it the Excellence of a well ripened *Buree du Roy*, he then try'd the reſt, and found them all ready for eating; and the Week following the *L'Epine de Hyver* was alſo ripe, and very good, and his black Pears of *Worceſter* began to rot; and that he was alarm'd at the Inſtance, that a Pear that he had ſeldom found ripe before *January* or February, ſhould be ripe more than two Months before its Time, till conſidering that as Nature ripens Fruit by gentle Degrees, ſo the Pears had been brought to this natural Perfection by a gentle Progreſſion, or continued Warmth.

The Culture of Wall Pear-Trees,] Mr. *Collins* diſapproves of planting Wall *Pear-trees* with *Apricocks*, *Plums*, *&c.* becauſe their Growth will be unequal.

As to the planting *Pear-trees*, that ſhould be as *Apricocks Peaches* and *Nectarines*; and he is of Opinion, that Trees ſet at ſix or ſeven Inches deep, will generally grow, if the Roots are ſhortened, and planted early in the Winter Seaſon.

As for the Winter pruning of *Wall Pear-trees*, he directs to cut off all the Shoots of every Branch, for the firſt ſix or ſeven Years, but to leave them the Thickneſs of a Crown Piece, from the ſtrait Line; that during this Time, all the Lines will be thick with bearing Buds, but will in a ſhort time after become naked towards the Root: But in order to remedy this, there may at this time be Shoots left, which nevertheleſs muſt be cut off cloſe to the Tree, if they do not come directly forward; and theſe that do are to be cut off at three Inches Diſtance from the Tree.

The next Year ſeveral more Shoots will put out. If theſe be cut off to two Inches, in Length, the Knots will be firſt formed; and if any thing ſhall ſhoot out at the Side, or Bottom of theſe Knots; after this they ſhould be taken off cloſe, ſo that there will be ſmooth Necks of three or four Inches from the Tree to the Knots.

Theſe Knots are to be continued on each Line, as it begins to be naked, and at five or ſix Inches Diſtance, if it may be.

Wall Pear-trees managed after this Manner will, if planted againſt an high Wall, in twenty Years grow fine and regular, up to the top of the Wall, and fifty Foot in Length, and will conſtantly bear all over for forty Years or more.

Tho' the Wood is of an hardy Nature, and ſo their Knots will not fail; to prevent Miſtakes in pruning them, he gives the following Directions.

1. That the Shoots which form the Knot do never croſs one another; to prevent which they are to be cut out.

2. They muſt not be allowed to ſtand within five Inches of one another; and when, in time the Knots ſhall grow larger, you muſt take away every ſecond.

3. If they grow againſt a *South*, *Eaſt* or *Weſt* Wall, when they are pruned you muſt keep them ſo ſhort, as never to let them be above ſix Inches from the Body of the Tree. And if they grow againſt a *North* Wall, they muſt not be permitted to be above nine Inches: Having this Length allowed them, they will be ſomething more expoſed to the Sun.

4. You muſt not at any time cut them off cloſe to the Bottom of the Knot, except they are too thick, and then you muſt leave them about an Inch, becauſe you will ſee little Wrinkles about the Bottom, and the bearing Wood puts out at theſe Places.

5. You muſt top that Shoot which bore the Year preceeding, from which you perceived the Stalk of the Pear plucked off; becauſe it is common for a Bud to put forth behind the Fruit of the laſt Year, and this Bud will bear the next Seaſon.

6. You muſt not ſuffer any Stumps to remain on the Trees, which, having been left in pruning, become dead and hard.

The Summer pruning.] He directs, in the Summer pruning of *Wall Pear-trees*, to take out at the Bottom of their Knots, all over the Tree, the rough, ſtrongeſt Shoots, nay, even all Shoots, except ſuch as are deſigned for Knots, and to cut them even with the Face of the Tree. Alſo to nail up ſuch Shoots as grow from the extream Parts of the Branches, leſt they break off; and alſo to prune off the reſt of the Tree ſo far from the Wall, as the Face of the Tree was left at the Winter pruning; and thoſe, where the Knots and Fruit come thick, are to be ſhortened, to give Light to the Fruit. The time for Summer pruning is about a fortnight before *Midſummer*.

Where Pear-trees are grown a conſiderable Length, and do not bear well, he does not approve of pegging their Bodies, nor that Method, he calls the barbarous and ſilly Way of cutting their Branches half way through, or more; but inſtead thereof he recommends the laying open their Roots, ſo as to come at the downright Root, and to cut only that ſo near the Top of the Ground, as may be. This, he ſays, is an excellent Expedient, and will fully anſwer the End.

And whereas the training Pear-trees, ſo as he has directed, ſo as to make that Figure ſo prodigiouſly fine, will require a conſiderable time; he therefore adviſes, while it is growing to it, to plant *Cherries*, *Nectarines*, *Peaches* or *Plums* between, ſo as to furniſh the Walls, which, as the Pear-tree comes on, may be cut away.

To train Pear-trees in Hedges.] They are to be planted after the ſame Manner as Wall-trees, at about twenty four Foot Diſtance, and if their ſingle Branches be laid regularly from the Bottom to the Top, they will meet and fill each Tree to twelve or fourteen Foot high, within the Space of twenty Years.

As theſe Trees ſhoot forwards, they are to be taken off cloſe to the Body of the Tree, except they may be led to the Bottom of the Tree without projecting too much: But this muſt not be done Hedge-wiſe. Theſe Shoots you muſt lay at about ſix Inches from one another, in the Shape of a Fan, and tie them with Withs.

If the Trees do not produce horizontal Shoots ſufficient to begin the Figure, within the two firſt Years, that is to ſay, eight or ten on each Side, you muſt cut them down, and leave on every Branch only twelve Inches of the firſt Year's Shoots.

As to their Management afterwards, theſe things are to be obſerved.

That the Tree being laid at ſix Inches wide, and ſtrait Shoots, beginning at about a Foot from the Ground, You muſt never ſtop them at their Ends, or ever remove them.

And Care muſt be taken, that the ties do not pinch them.

If it ſhould, by any Accident, happen that theſe Trees ſhould not at firſt come to an equal Length, in the Middle, with that of each Side, there is no Occaſion to be uneaſy, becauſe the Middle of the Tree will always be furniſhed with more Sap from the Root, being more in a direct Line, and ſo will never fail to produce a ſufficient Number of Branches, for making up the Head: So that it will riſe to thirteen or fourteen Foot high, before the Side Branches, which lie level in a Line, ſhall grow to the Length of ten Foot.

The only Difference between the pruning of theſe Trees, and thoſe on Walls is, that the Knots muſt project on both Sides the Hedge.

The Culture of theſe Trees may be perform'd with Eaſe and Pleaſure, in as much as their Knots are ſeldom known to fail, and ſo the Shoots will not be injured by the Weather.

You may, if you pleaſe, intermediately plant Standard *Cherries*, or *Plums*, with them, which will anſwer in bearing, and may be removed without any Injury when the *Pear-trees* are near upon joining one to the other.

18. PEAS.

PEAS, ſays Mr. *Mortimer*, are of very different Sorts; in a ſtiff, fertile Ground they yield a conſiderable Crop, but ſown on binding Land, yield but an uncertain Crop, without ſuch frequent Fallowings as other Grain requires; they alſo deſtroy Weeds, fit Land for after Crops, are an Improver, and not an Impoveriſher of Land.

But of ſuch *Peas* as are ſown in Gardens, the *Hotſpur* is the ſpeedieſt of any in Growth. If they are ſown in *September*, and are defended with Fences of Reeds from extream Froſts, you will have ripe Peſcods the *May* following. If they are ſown in *February* or *March*, they will ſpring earlier than any ſown before Winter; and being ſown in the Middle of *May*, they will come to their full Maturity in ſix Weeks time. But the beſt Way is to ſow them ſo as to have them ſucceſſively one after another.

Mr. *Bradley* ſays, *Peas* may be ſo ſown in ſeveral Crops, as to furniſh a Table throughout the whole Summer.

He adviſes the ſowing of *Hot-ſpur-peas* in *November*, or *December*, which is ſoon enough, becauſe, if ſown ſooner, they would be in Danger of the Froſts. Theſe, he ſays, ſhould be ſown in Drills, the Lines running from *North* to *South*, and each Drill about two Foot Diſtance from the other. When theſe have ſhot about ſix Inches high, they muſt be earthed up on both Sides the Lines, about four Inches, a little Bank being rais'd on the *Eaſt* Sides of them, to defend them from the Blaſts, with which the *Eaſt* Winds are attended.

He adviſes to ſow a ſecond Crop of the ſame *Pea* in *February*, and a third Crop in *March*.

As for ſetting *Peas*, Mr. *Mortimer* ſays, they delight in a warm, light Soil, If it be rich the Peas are the fairer, but if it be lean they are the earlier, and eſpecially when dry, ſpend the better.

The Way of ſetting of *Peas*, which he moſt approves of is to hough them in, which not only makes a quick Riddance of the Work, but covers all at a certain Depth, and does not harden nor ſadden the Ground as ſetting does; but then he adviſes to take Care to ſow them without ſcattering, becauſe that will entice the Mice to ſearch after them. And if they be ſown in *Autumn*, they ſhould be ſown thicker than if in the Spring, becauſe they are to undergo the Hardneſs of the Winter: *And if* they are ſown too late, *when the* Danger of the Froſts are over, you may thin them, tranſplanting them you take up, watering them ſoon after their tranſplanting.

The *Sugar-pea*, Mr. *Mortimer* adviſes to plant in *April*, which tho' its Cods are very crooked, and ill ſhaped, yet when they are boiled with the unripe *Peas* in them, are extraordinary ſweet; but there is one Inconveniency that attends theſe *Peas*, that is, that their being ſo very ſweet renders them liable to be devoured by the Birds. The Pods of theſe *Peas*, when they firſt begin to appear with the Husks and Tendrels, afford a pretty Compoſition in a Sallet. Theſe *Peas* are ripe about *Midſummer*.

Mr. *Bradley* adviſes to prepare ſome Ground for ſome of the *dwarf Peas*, eſpecially for the very ſhort Kind, the Beginning of *April*, which, though they ſeldom riſe higher than half a Foot, or cover more Ground than ſix or ſeven Inches ſquare, yield near as many Peas as one of the largeſt Kinds, and will equal the beſt in Taſte: Theſe *Peas* ſhould be ſet in Lines, half a Yard diſtant one from the other, and the *Peas* four or five Inches a-part, if they be deſigned for the Table.

Beſides this ſmall Sort there is another Sort of *Dwarf-pea*, that grows about a Foot high, that is well taſted, and a good Bearer. This Sort will bear ſowing thicker than the former, becauſe their Vines grow more upright, but their Rows ought to be two Foot a-part. Theſe may be ſown in *April*, *May* or *June*, to have Crops to ſucceed one another.

Mr. *Bradley* recommends theſe laſt, if you would have *Peas* in the Winter, to be ſown in a gentle hot Bed, the firſt Week in *September*, about five Inches a-part; for that they take up but little Room, and afford a conſiderable Crop, ſo that one Bed of them will yield as many Peas as three Beds of the ſame Size ſown with the common Sort of Peas.

The large *white* and *green Haſtings*, Mr. *Mortimer* ſays, are tender, and are not to be ſet till the cold Weather is over, and then not very thick, becauſe they both ſpread much and mount high, and therefore require the Help of tall Stakes.

As for the *Rouncival*, or *Egg-pea*, which is alſo called the *Dutch Admiral*, Mr. *Bradley* ſays, the right Seaſon for ſetting them is the latter End of *April*, or Beginning of *May*, and it is the moſt rampant of all the *Pea-kind*, and therefore requires more Room than the others. The Method of ſowing theſe in Lines about three Inches a-part, planting two Rows within a Foot and an half one of another, and then leaving a Space of two Foot and a half, or three Foot for an Alley, for the Convenience of gathering them: When they are about half a Foot high, they are to be earthed up and ſtuck up with boughs ſix Foot high, for them to run upon, between each double Line of Peas; being thus ordered, they will bear plentifully, which they will not do if they are ſet too cloſe, or are not ſtak'd up.

Mr. *Mortimer* reckons up ſeveral other Sorts of *Peas*, as the *Reading*, *Sandwich*, *white* and *grey tufted*, or *Roſe-pea* of two Sorts; *grey*, *Windſor*, great *Maple*, great *Bowling*, great *Blue-peas*, *Marrow-peas*, *&c.*

He ſays, that when the *Peas* are grown about three or four Inches high, if the Earth be houghed up againſt them on each Side, and the Land be laid up in deep Furrows from *Eaſt* to *Weſt*, and the Peas ſet on the *South* Side of each Furrow, they will ripen the ſooner by the Reflection of the Sun, and it will ſecure them much better in Winter.

Mr. *Bradley* ſays, that they have a Sort of a *Pea* in *Holland*, which has no Skin within the Shell, which is eaten Shell and all, like Kidney Beans. It is a pretty ſweet and profitable Pea; and he deſigns to introduce it.

He ſays, that he has been informed from Mr. *Dubois* at *Whitham*, that he has gathered Peas, of the Dwarf Kind, from ſix Pods that had been ſown in a Pot late in *Autumn*, which had ſtood expos'd abroad for ſome Time, and only ſheltered in the Conſervatory during the rude Seaſon; that theſe Peas were trained on Sticks and bore plentifully; yielding near half a Pint at one Gathering, after they had been ſhell'd.

19. *The* EVERLASTING-PEA.

THESE *Peas* are to be ſown early in the Spring on digged Ground, in Rows, and ſo houghed in the Intervals between the Seed; for the Seed is long in coming up, and afford no Profit the firſt Year: But though they require Care and Pains to preſerve them from Weeds, they will abundantly make amends for it the ſucceeding Years. They are Plants eaſily propagated, and thrive exceedingly in good Land. Their Roots yield yearly great plenty of excellent Provender for Horſes.

Some ſow them firſt on a ſmall Bed, and the next Year remove them into freſh Ground, and plant them about twelve or eighteen Inches aſunder that they may the more eaſily be houghed and weeded.

Mr. *Bradley* ſays, this is a perennial Plant; is raiſed from Seeds ſown in *March*, but does not bloſſom till the ſecond Year after ſowing. The Flowers are of a Peach bloom Colour, and continue blowing for above two Months.

He ſays, it will hardly bear tranſplanting, without great Care to put it immediately into the Earth, which is to be done in *March*, as ſoon as the Haulm is withered. It is a Carrot root-Plant, delights in a ſandy Soil, and would be planted either near a Tree, or ſome Hedge, *where it* may be ſupported; for *it will grow* about eight Foot *high*.

20. PEDICLE.

PEDICLE is the Stalk, or Stem, upon which grows the Leaf, Fruit or Flower of any Plant.

21. PELLICLE.

PELLICLE is a little Skin or Film.

22. PELLITORY *of the* WALL.

PELLITORY of the Wall is propagated either by *Slips* or *Seeds*, which ripen in *July* and *Auguſt*; and altho' the Leaf wither in Winter the Roots remain.

23. PENDANTS.

PENDANTS are a Sort of Seeds, ſuch as are on the Threads in the Middle of *Lilies* and *Tulips*.

24. PENDULOUS.

PENDULOUS *Heads* of Flowers, are ſuch as hang downwards.

25. PENNATED.

PENNATED *Leaves* are ſuch as grow directly one againſt another, as thoſe of *Aſh*, *Wallnut-Trees*, &c.

26. PENNY ROYAL.

PENNY *Royal* is of three or four Sorts; it is a common

mon Plant; it is propagated from *Slips* planted in *March* or *April*; proſpers beſt in a ſtiff Soil, and delights in moiſt, ſhady Places.

27. PENTAPETALOUS.

PENTAPETALOUS Flowers are ſuch as conſiſt of five Leaves.

28. PEONY.

Various Kinds,] THE *Peony* is a Plant that is accounted of two Sexes, male and female; the male is ſingle, and known by its Leaves coming conſtantly whole without any Diviſion; its Root being round and long, and the Flower of a purpliſh red.

The female *Peonies* ſometimes bear ſingle and others double; the Leaves of all being divided on the Edges; the Roots more tuberous, growing in Clods, with many Root Pieces faſtened to them with ſmaller Strings.

Of the beſt double ones there are ſeveral Sorts, as

Firſt, the double *purple Peony*, which is ſmaller in all its Parts than the common red ones; the Leaves being of a a whiter *green*, and thoſe of the Flower of a bright ſhining Colour.

Secondly, The double *Carnation Peony*, which at the firſt opening is of a bright ſhining *Carnation* Colour, but daily grows paler till it becomes almoſt *white; the Leaves of* it never fall of, but wither on th Stock.

Thirdly, The double *black*, or *white Peony* which bears large Flowers, and is at its firſt opening tinctured with a light Bluſh; but in a few Days becomes perfect white, and ſo continues long before it decays, and then withers on the Stalk. This is accounted the beſt Sort.

Fourthly, The double ſtrip'd Peony, which is ſmaller than the laſt in all its Parts; the Flower is of a curious *red*, ſtrip'd with *white*; it laſts a long time, and does not ſhed its Flower.

Soil.] It loves a Soil ſomething fat and moiſt, and is multiplied by the Roots in the following Manner.

Way of multiplying.] Take up the Plant, ſteep the Root in Water, and waſh off all the Earth; then divide the Root carefully into ſeveral Parts, make a pretty large Hole in the Ground, in the Middle of which raiſe a little Sort of Bank, then put the Peony upon it in ſuch a Manner, that the Knots of the Root may lie about three Inches deep, and the lower Part of the Roots, by the Circumference of this Bank, may be kept ſeparate one from another, becauſe if they be entangled one in another, they will be apt to die for want of Subſtance ſufficient to nouriſh them.

After this fill the Hole with Earth, and preſs it down upon the Roots, then water them. The Time to do this is either in *October* or *November*.

None of theſe Roots will grow but ſuch as have Sprouts, or Buds, at the End, ar rather Top of them, of which Sort each Piece thereof will grow.

The double ones ſome Years bring Seeds to Perfection, which being ſown very thin in *September*, where they may ſtand in the Ground unremoved for two Years, may produce new Varieties.

All theſe flower in *May*, are hardy Plants, and endure long in the Ground without ſtirring. They will not bear to be removed before the third or fourth Year after they are planted. This Plant loves the Shade and thrives beſt where it is leaſt expoſed to the Sun, and the Flower becomes more beautiful full and continues longer in bloſſom.

29. PERDIFOLS.

PERDIFOLS are ſuch Trees, or Plants, as loſe their Leaves in Winter, &c.

30. PERENNIAL.

PERENNIAL *Plants* are ſuch which ſhed not their Leaves in the Winter, ſuch as are commonly called Ever-greens, or ſuch as will grow again without being ſown.

31. PERFECT FLOWERS.

PERFECT *Flowers* are ſuch as have the finely coloured ſmall Leaves, called *Petala*, with the *Stamina*, *Apices* and *Stylus*.

32. PERFORATED.

PERFORATED *Leaves* are ſuch Leaves of Plants as ſeem full of little Holes, as tho' they were bored.

33. PERIPLOCA, *or* PERIDOCA.

THIS Plant twiſts it ſelf about a Pole, like Hops, and lives over the Winter, and yearly puts forth ſmall blue Bloſſoms. It is multiplied by *Layers*.

34. PERIWINKLE, CLEMATITE, *or* CLIMBER.

Deſcription.] MONS. *Liger* thus deſcribes it: It ſhoots out Branches like *Vine-Twigs*, pliant and ſubject to creep on the Ground, if they meet not with ſomething to ſupport them. The Leaves are large, and a little indented, growing uſually five on one Side: At the End of theſe Branches grows a roſy Flower, compos'd of four well-plac'd Leaves; in the Middle of the Flower ariſes a Chive, which in Time becomes a Fruit containing a Seed as ſmall as a Hair, and ending in little Plumages.

Various Kinds.] There are ſeveral Sorts of this Plant, ſome bearing *white* and ſome *blue* Flowers; and a Sort whoſe Leaves are very finely gilded, which will make a fine Show under gilded Trees.

Way of Increaſing.] If it be laid in the Earth about *March*, it ſtrikes Root very eaſily; or if the *Cuttings* be planted in *September* they will do the ſame.

Soil.] It delights in moiſt Ground or Shade; ſo that it will grow in any ſhady Place, or under the Droppings of Trees: Its Leaves are always *green*.

Mr. *Bradley* ſays, That tho' this Plant hardly deſerves the Name of a *Shrub*; yet its pretty *blue* Flowers make ſo agreeable a Show in the *Summer*; and when it is ty'd up to Stakes, it may very well be reckon'd a Companion for flowering Shrubs, and may be planted in Wilderneſs-Works, in Pots, to prevent the too great Increaſe of its Suckers, which will be apt to over-run the Ground.

Monſ. *Liger* ſays, it is a Plant of no difficult Culture, being in no Fear of the Cold, and will agree with all Earths; requires only a little Watering now and then. It may be multiply'd by *Seed*; but much ſooner by ſplitting its *Roots*, as the *Poets Hyacinth*.

35. PERSONATI.

PERSONATI. Thoſe Flowers are call'd *Perſonati*, which reſemble the gaping Mouths of ſome living Creatures.

36. PETALS.

PETALS, are thoſe fine colour'd Leaves, which compoſe the Flowers of all Plants.

37. PHYLLIREA.

Deſcription.] THE *Phyllyrea*, ſays Monſ. *Liger*, is a Shrub, which ſhoots forth a Stem, divided into ſeveral Branches, five or ſix Foot high, garniſh'd with ſoft, oblong Leaves, of a fine *green* Colour, along the Stem oppoſite one to another; at the Top of theſe Branches, and where the Leaves join to them, grow monopetalous or ſingle-leav'd Flowers, in the Form of a Bell, indented into four Parts: Out of the Cup of each Flower riſes a Chive, faſtened to the Bottom of it like a Nail, which becomes a round Fruit, full of round Seed.

Various Kinds.] Mr. *Bradley* ſays, the Nurſery-men know five Sorts of *Phyllireas*, which they call, the *Plain-phyllirea*, the *bloach'd* Kind, the *True-phyllirea*, the *Dutch Silver-leav'd* Sort, and the *Gilded Dutch* Kind.

Way of Multiplying.] Monſ. *Liger* ſays, the ſureſt and ſhorteſt Way to multiply *Phyllireas*, is to ſow them; and that is commonly done in *September* or *October*; and the Seed being hard like a little Stone, muſt firſt be ſteep'd in Water for twenty four Hours.

The firſt or moſt common Sort of theſe may be multiply'd by *Berries*, order'd as directed for thoſe of the *Holly*. Or it may be rais'd by *Layers*, as the other Sorts are, which will preſently take Root.

Mr. *Mortimer* says, they are rais'd of Layers or Seeds, which lie long in the Ground, before they come up; and ſometimes by *Slips*.

Mr. *Bradley* ſays, The Time of Laying the tender Branches of *Phyllireas* into the Earth, is in *September*; by which Means you may greatly increaſe this Kind of Plant. That it delights in a light, natural Soil, without any Mixture of rich Compoſt.

Mr. *Mortimer* ſays, The young Plants may beſt be remov'd at two Years old, in *March* or *April*; but will not bear removing till the coldeſt Seaſons are over. They may be clipt after Rain in the *Spring*, before they grow ſticky, and while the Shoots are tender.

Mr. *Bradley* ſays, the *Plain-phyllirea*, and *bloach'd* Kind, are quick Growers, and make tolerable Hedges, if they be ſupported with ſtrong Rails or Stakes; but are not capable of reſiſting the Force of the Winds without ſuch Helps: But the *True-phyllirea*, by Reaſon of its ſlow Growth, is a fit Companion for the beſt *Ever-greens* in a *Parterre*, and is better able to defend itſelf againſt the Inſults of Storms.

That he has ſeen Pyramid and headed Plants of this Sort, which in Beauty have equal'd any other of the Garden-Race; but the *plain* and *bloach'd-leav'd* Kinds are with great Difficulty kept in any Form.

That the *Dutch Silver-leav'd* and *gilded* Sorts are valuable for the Smallneſs and elegant Variegations of their Leaves, and be- e they may be eaſily train'd any Shape; yet they are not ſo proper for open Gardens, as Places of Shelter, becauſe they cannot abide the Froſt.

The chief Uſes of *Phyllireas*, Monſ. *Liger* ſays, is either in Palliſadoes or Arbours, in either of which they look well.

38. PHYTOLOGY.

PHYTOLOGY ſignifies a Treatiſe or Deſcription of Plants.

39. *The* PICEA, *or* PITCH-TREE.

Deſcription.] THIS Tree is thus deſcrib'd by Monſ. *Liger*: It reſembles a *Yew-Tree*, except that its Leaves are of a *green* Colour, that is not ſo *brown*. Its Flowers are amentaceous, or in the Form of Strings, being compos'd of ſeveral Chives, but barren; for their Embryo's grow among the Leaves, from a ſeparate Spica or Ear, and become a leafy Seed, lodg'd equally in Scales; which being made faſt all round, compoſe this Fruit, which is nothing elſe but a Spica or Ear that grows bigger.

Way of Propagation, &c.] This Tree is rais'd and cultivated after the ſame Manner as the *Yew-Tree*; which ſee. It loves a dry Soil, but more Sun than the *Yew*; and is trimm'd with Shears into Form, like the *Yew-Tree*.

When it is once put into the Ground, to continue without Tranſplanting, it grows without Manuring or Tillage, unleſs it be in flat Borders; the Ground of which we are oblig'd to turn up, for the Culture of the Flowers that are in it.

40. *The* PICEASTER.

THIS, Mr. *Mortimer* ſays, is a wilder Sort of *Pine-Tree*, out of which *Pitch* is boil'd ; it grows both in the hot and cold Countries. The Body of this Tree being cut or burnt, will (Mr. *Evelyn* ſays) emit Suckers from the Roots ; which neither the *Fir* nor *Pine* will do.

41. PILOSITY.

PILOSITY of Plants, ſignifies their Roughneſs, or Hairineſs.

42. PIMPERNEL. *See* BURNET.

43. PINCHING.

PINCHING was firſt invented by Monſ. *Quintiney*, and is practiſed upon *Apricock*, *Fig*, *Peach* and *Pear-Trees*. It is a Sort of Pruning, which is done by the Nails, to three or four Eyes; this hinders the too forward Paſſage, and high Spring of the Sap ; makes it burſt out in ſeveral Eyes, and produce many Branches. Without Pinches thoſe Branches would grow too large and high, and would ſhoot out into nothing but Wood ; whereas Pinching them, makes them divide themſelves into ſeveral little inferiour Branches, ſome of which will prove good Bearers, and the reſt being proper for Wood, will ſerve to adorn the Tree.

This ought to be done, ſays Monſ. *Gentil*, in *May* and *June* ; if it be done later, it will not have the ſame Effect, becauſe ſuch Branches will produce no others under them, but what will prove crumpled and unfruitful the following Year : For the Sap is by this Time employ'd in Fortifying not only the Wood and Branches, but alſo thoſe for Fruit which ſprung from the firſt Pruning, and even in Nouriſhing the Fruit it ſelf upon the Tree : This cauſes them that ſhoot out after a late Pinching, to be curled and unprofitable.

44. PINE-TREE.

Various Kinds.] MR. *Mortimer* ſays, There are ſeveral Sorts of *Pine-Trees*; but among us about three or four Sorts ; but as they are to be rais'd of *Seeds*, delight in the ſame Sort of Soil, and are to be manag'd the ſame Way as the *Fir-Tree*, he directs to the Article *Fir-Tree* ; which ſee.

Way of Propagation.] Mr. *Cook* ſays, He knows but of two or three ſorts of *Pines* in *England* : The one is common, and may be rais'd by the *Seed* ſown in good Ground in *February*, and in ſome ſhady Place. But if at that Time the Weather ſhould prove froſty, the *Seeds* ſhould be laid into Earth or Sand, and kept in the Houſe 'till the Weather proves favourable.

Pines, he ſays, will not grow well of *Cuttings* or *Layers* ; they are bad to be remov'd when old, becauſe the Roots in a few

Years run far from the Body of the Tree, and if they ſhould be broken or cut, they will not break out readily at their Sides and Ends. Therefore the ſureſt Way, is to remove them while they are young, at two or three Years old, and at the Time hereafter mention'd. They are to be prun'd after the ſame Manner as the *Fir-Tree*.

Theſe may be expected to become glorious, ſtately Trees: No *green* Trees in *England* will be comparable with them. They are fine Trees to ſet round a Garden or Bowling-green; for that the Leaves are not hurtful.

Culture.] The beſt Way to keep them, is in Stories, about three Foot between one another; but you muſt not cut off their Ends, nor let them grow thick on a Heap. If you keep them in Stories, they will grow taper; and ſome may be taken away, as there ſhall be Occaſion, and by this Means help them up to a great Height, and as ſtrait as an Arrow; for they naturally grow in a good Shape.

The Way to get the *Seeds* out of the *Clogs*, is to lay them before the Fire, and they will gape.

Time of Planting.] He tells us, as to the *Pine*, *Pinaſter*, and *Fir-Trees*, the Reaſon that they are not ſo much reſpected as they ought to be, is caus'd from the Ignorance in Planting them; becauſe the right Time and Seaſon is not taken; for it is the worſt Time to plant them from *November* to *March*.

The beſt Time to remove theſe and moſt Sorts of Greens, is from the Middle of *March* to the latter End; or from the Middle of *Auguſt* to the latter End. They muſt not be ſet too deep.

But *Pines*, when large, will not bear Tranſplanting ſo well as the *Fir-Tree*; and therefore ought to be remov'd with as much Earth as may be; and at their firſt Removal ſhould be well watered; as alſo ſhould *Fir-Trees*: And ought to be planted as ſhallow as their Roots will allow of.

There is alſo one Thing to be noted, That no *Ever-greens* will bear Lopping well, tho' they will ſpare many of their Side-Branches in *April*. If they are of the tendereſt Sort, he adviſes, to cut them three or four Inches from the Body of the Tree, and the next *Spring* to cut them cloſe to the Stem; and to cover the Wounds with Wax and well-temper'd Clay, and it will heal them.

Soil.] They delight in a freſh, *gravelly* Soil, mix'd with *Loam*; but do not love *Dung*.

45. PINE-APPLE. *See* ANANA.

46. PINKS.

Various Sorts.] BESIDES the common ſingle *Pinks* rais'd from *Seed*, and ſown in Drills or Lines, about *March*, the *Pinks* moſt commonly cultivated in Gardens, Mr. *Bradley* reckons to be the *red* *Double-pink*, the *white Double-*

pink, the *Double Pheaſant Eye-pink*, the *Dwarf Double Mountain-pink*, and the *China-pink*.

The firſt three of theſe, (tho' it hath been uſual to make Edgings of them) Mr. *Bradley* directs, that they rather be planted in Spots in the Inſide of Borders, becauſe they Blowing a Foot and half high are apt to grow irregular in Edgings.

As for the *Dwarf Mountain-pink*, that, he ſays, is now but rarely to be found; but as it is a ſlow Grower, and not riſing to above eight Inches high, he well enough approves of that for Edgings on the Outſide of Garden-Beds. All theſe four Kinds, he ſays, are rais'd from *Slips* planted in *Auguſt*, or very early in the *Spring*.

Mr. *Mortimer* ſays, The common *red Pink* and *Double* ones planted on the Edges of Walks, and againſt the Sides of Banks, will not only preſerve them from Mouldring down; but when they are in Bloſſom, will be a great Ornament, and an excellent Perfume; and when they are out of Bloſſom, they may be clipp'd by a Line, which will keep the Borders even and ſtrait. They are commonly rais'd by *Seeds* ſown in *March*; or planted out by parting the *Roots*, which are apt to ſpread. They flower in *June*.

Pinks, Monſ. *Liger* ſays, are indifferently ſet in open Ground, upon Beds, in earthen Pots or in Tubs, either in *Autumn* or *March*.

The Marks of good Pinks.] 1. A *beautiful Pink is large*, has good Store of Leaves, and is ſhap'd like a little Dome.

2. If the *white* be clear, and not ſtreak'd with *Carnation*. If the Leaves be united at the End, not indented, round, and not pointed.

3. The more it is variegated the better it is, if the Mixtures be well divided, and not imbib'd.

4. The moſt beautiful Mixture is that which begins from the Bottom of the Flower, and is continued to the Top.

Of Raiſing Pinks by Seed.] If they are ſet in open Ground, the Plot is to be ſpread an Inch deep with the fineſt Mould.

If they be ſown in Beds, the Mould will do well enough of it ſelf, if it contains a ſufficient Stock of Salts to raiſe the Plants to a perfect Growth, till they are fit to be remov'd.

If they be ſown in Pots or Tubs, the Bottoms are to be fill'd with good, fine ſifted Earth, which is to be cover'd with Mould, at leaſt an Inch deep.

The Seed is to be ſown in theſe Pots, &c. thus prepar'd, as thin as poſſible, and cover'd with the Mould and watered, that the Mould which is light, may unite it ſelf to the Seed, and warm the Shoot, and the ſooner diſpoſe it to become Plants. Theſe Pots ſhould be ſet in a Sunny Expoſure; and if the Seed be ſown in the open Ground, it ſhould be where the Plants may have the ſame Benefit. The Plants when rais'd muſt be often water'd.

To plant them out.] When the Plants are grown fit for Tranſplanting, they may be planted in Beds by Lines, at four Inches Diſtance. The proper Time is the latter End of *March*, or Beginning of *April.* They will not bear Flowers the firſt Year; but being ſecur'd by Mats, in hard Froſts, till they have outliv'd a *Winter*, they will thruſt out young Suckers at the Foot, from the Midſt of which ariſe Stems, ſome of which will bear Flowers, and the reſt will ſerve for Layers.

The *Pinks* being planted, they ſhould be cover'd in the Daytime with Straw, Mats, or Cloth ſtretch'd over them, in the Shape of the Roof of a Houſe, that they may be skreen'd from the too violent Heat of the Sun for ſeven or eight Days, that it may not ſcorch their Roots; but they muſt be uncover'd at Night, that they may enjoy the Influence of the open Air.

The next Month of the following Year, after the *Pinks* are bloom'd, chuſe thoſe that are the moſt beautiful, for *Layers.*

Of Laying Pinks.] Make an Inciſion with a Penknife in the Middle of the Knot of the *Layer*, half way, or at moſt two Thirds; lay it along, and ſtay it down with a Hook, or hooked Stick, and ſupport it with another ſhort Stick, if it be in the open Ground; but if they be in Pots, the Edges of the Pots will be a ſufficient Support. That Part that lies in the Ground, muſt be cover'd with a little Mould; water them, and leave them mſelves.

If the *Layers* are in open Ground, they muſt be skreen'd from the Heat for the three firſt Days; if in Pots they muſt be remov'd into the Shade, and afterwards place them in ſuch an Expoſure, as will beſt haſten their Motion.

They will commonly take Root by the eighth or twelfth of *September*: If they have not by that Time, and have ſhot out nothing but ſmall Fibres, the Pots ſhould be ſet in a Bed moderately warm, and that Heat will animate the Parts diſpos'd to ſhoot out into Roots.

The Earth being light, and ſo not over moiſt, it ought to be frequently water'd; and the *Layers* ſhould be expos'd to the hot Sun.

Of Increaſing Pinks by Suckers.] Chuſe the ſmalleſt *Suckers*, for they are the beſt; and cut them with a Pair of Sciſſors within two or three Joints of the Heart, which is the Place from whence the Leaves ſpring; beſure ſee that they have no more: When you have cut them, ſplit them into four Parts, from one End to the other, and direct the Inciſion from the Joint neareſt to the Extremity, to the ſecond; then cut off the Leaves to three Inches Breadth near the Middle, and lay them in the Sun till they begin to wither; afterwards throw them into freſh Water, and let them lie in it till you perceive they recover new Vigour. Then take them out; and the Pots having been ready fill'd with common Earth, well ſifted, and cover'd two Inches thick with

Mould, bury the *Suckers* up to the ſecond Joint; preſs the Earth hard upon them with your Hand, water them and ſet them in the Shade, and leave them to themſelves.

If you find they have not taken by the Middle of *September*, ſet the Pots in warm Beds, and cover them with Glaſſes

Earth proper for Pinks.] *Pinks* love naturally to be cool; therefore you muſt take one Third of the beſt Kitchin-Garden Earth, one Third and a half of Mould, and half a Third of *yellow* Earth, ſift them and mix them well together. Fill the Pots with this Earth, preſs it down a little, to prevent it from ſinking; but fill them no higher than within a Finger's Breadth of the Top, and afterwards fill them up with good Bed-Mould.

If the *Layers* have taken Root, cut them from the Stock, as near the Stem as you can: And ſee that the two Branches of the *Layer*, that is the lower Parts, which were ſeparated by the Inciſion, and to which the ſmall Fibres adhere, be exactly equal; and pare off the Extremity of the Leaves.

The *Layers* being thus prepar'd, make a Hole in the Middle of the Pot with your Finger, put in the *Layer*, and fill up the Hole with Mould, preſs it down on them, and water them. Set them in the Shade for twelve Days.

Tho' *Pinks* are not very ſenſible of Cold, yet it may not be proper ſometimes *to leave them out all the Winter*; but when the Froſts come in ſevere, they may be hous'd.

If the *Winter* prove mild, and the Earth about them grows too dry, a little freſh-drawn Well-Water will not be amiſs for them; but if it be either froſty or like to be ſo, this ſhould not be done at all.

If any Leaves incline to rot, pluck or cut them off as near the Trunk as you can.

When the Seaſon is favourable, ſet them Abroad; you may ſet them in an *Eaſtern* Expoſition, which ſome count the moſt beneficial; but they will thrive in a *Southern* one.

When they are water'd, it ſhould be with Water that has been expos'd to the Sun; and a little Watering-Pot is the beſt, that it may diſtil on them gently, like Rain, and not break up the Earth. When they begin to ſpindle, they muſt be ſupported with Sticks, and ty'd to them.

The Earth being waſh'd away by frequent Watering, and waſted by the Heat of the Sun, renders it neceſſary to turn the Superficies up a-new; but this will be very beneficial to them, and eſpecially if a little Bed-Mould be thrown upon it, which will furniſh them with new Salts for their Nouriſhment.

When they ſhoot out too many Buds, they muſt be diſcharg'd of ſome of them, and if two grow oppoſite to one another, one muſt be cut off. Thoſe are to be taken off that grow neareſt to the Stock. More muſt be retrench'd from thoſe that want a great deal of Nouriſhment;

and leſs from thoſe that grow naturally large; and therefore it is ſometimes neceſſary to leave them all on, to prevent them from Burſting.

The Buds of thoſe that burſt ſhould be bound up, and a little Slit ſhould be made on the Side that ſeems to bunch out. Thoſe Buds that are thick and ſhort, are in moſt Danger of Burſting.

When *Pinks* are in Bloom, thoſe that are like to be beautiful ſhould be comb'd in the Manner following:

The Hands being waſh'd and wip'd dry, ſtroke the *Pink* from the Husk upwards; and opening it a little, diſpoſe thoſe Leaves that are regularly plac'd, in as good Order as you can.

Some uſe a Piece of Paſteboard no bigger than the Flower, with a Hole in the Middle, and thruſt the Flower through it, having diſpos'd the Leaves as artfully as they can.

While they are in Flower they ſhould be covered, being of ſo delicate a Nature, that both the Sun will dry them up in a ſhort Time, and the Rain will ſpoil their Luſtre. And if they they be ſet in the Shade, the Flower will laſt the longer.

Some Diſeaſes incident to Pinks.

Putrefaction, and their turning *white*: The Way to prevent this, is, not to water them too much, and to cut off the affected Part to the Quick, before it is *too far* gone; and then to cover *the Plant with* ſome dry, light *Earth*.

As for the ſecond: The beſt Way to ſecure the Flower, is, not to let it grow dry, nor to expoſe it to a diſagreeable Aſpect; to ſecure it as much as well can be from Fogs, which are apt to affect it to that Degree, that it will be paſt Recovery.

47. INDIAN-PINK.

Deſcription.] MONS. *Liger* thus deſcribes this Plant: It ſhoots up into a Stem, about a Foot and half high: This Stem is divided into ſeveral Branches, which are full of Leaves; theſe Leaves are indented on the Edges, and pointed at the Top. At the Extremity of each Bough, grow round, radiated Flowers, which are compos'd of ſeveral well-order'd *yellow* Flowers, the Diſk of which, conſiſts of ſeveral Flouriſhes, cut into many Parts. The Crowns of theſe Flowers are compos'd of ſeveral half Flouriſhes, which are plac'd on Embryo's, and are contain'd in a Cup of one Leaf, which Leaf is ſhap'd like a Pipe: This Embryo afterwards becomes a cornered Seed, inclos'd in a little leafy Head, and faſtened to its Bed.

Culture.] The *Indian Pink* requires much the ſame Culture as the *Female Balſam Apple*; which ſee. The Plants will by no Means endure the Cold.

It is a very proper Plant for an Ornament of Compartments of Parterres; but they ought not to be ſet in the Middle of Plants of the larger Size, but rather on the Edges; becauſe they will be hid by thoſe Plants that are full of Branches.

48. GERMAN PINK.

THIS Plant is call'd the *German Pink*, becauſe it grows plentifully in that Country.

This *Pink* is always of a flaming *red*, and the Leaves are much larger than thoſe of other *Pinks*; and in this it differs from other *Pinks*, in that their Flowers vary, and this is generally in the Colour of their Flowers.

Culture.] This Plant is to be manag'd in every Reſpect like the *Poet's-Hyacinth*, or *Poet's-pink*, (which ſee) being of the ſame Nature, and are to be increas'd after the ſame Manner, excepting this Difference, That the *German-pinks* are generally ſet in open Ground or Pots.

49. POETS-PINK, *or* POETS-HYACINTH.

Deſcription.] THIS Plant from its Root ſhoots out ſeveral Stems, of about eighteen Inches high, which is divided into ſeveral Branches. The Leaves of it are long, and pointed at the End. Flowers like *Pinks* grow at the Top of thoſe Branches: Theſe Flowers are *pentapetalous*, or conſiſting of five Leaves, of a deep *red* Colour, which ſometimes are mix'd with Streaks of *white*.

Way of Propagation.] This is a vivacious Plant, and may be increaſed three Ways, *viz.* by *Seed*, by *Slips* with Part of the Roots, and by *Slips* without them.

By Seeds.] The *Seed* ſhould be ſown in *September* or *October*; and tho' this will thrive in moſt Places in a Garden, if it be good, yet nevertheleſs it will thrive beſt in the moſt compound Earth, becauſe there it is to get thoſe Diſpoſitions that may make it apt for Production; it ſhould have the moſt ſubtile and volatile Salts for its Nouriſhment, which are not to be found in the ſimple Earth.

Therefore prepare a Bed, and ſpread upon it Mould an Inch deep, mingled with Garden Soil ſifted, and make the Superficies ſmooth. Sow the *Seeds* ſcatteringly in Drills drawn acroſs the Beds in a Line.

When theſe *Seeds* appear above Ground, weed them carefully, and water them as Occaſion requires.

They ought to be covered carefully with Straw, or dry Dung, that they may be able to bear up againſt the Severity of the *Winter*; but when the Weather is mild, and the Sun ſhines, remember to uncover them: And by this Management they will thrive till the Month of *March*, that the *Spring* will ſupply them with new Vigour; ſo that they will ſhoot ſufficiently, that they may be tranſplanted the latter End of *March*, or Beginning of *April*.

They may alſo be ſown in Beds in *February* or *March*; but then you muſt take Care to ſecure them from the Froſt, and water them duly when the Seaſon requires it.

To increaſe them by Slips, with part of their Root.] This is reckon'd the ſhorteſt Way, and is as follows: Diſplant Stocks of a Year, or two Years Growth, and well-grown Plants; pick off all that appears dead about them, and break off the Slips one from another; then plant them as deep as the very Bud, which appears *green*; then having preſs'd the Earth down about them, water them, and take Care to weed them.

If they have but three or four Fibres of Roots, they will take Root, and become very tufted. The common Time of doing this, is in the Beginning of the *Spring*.

To increaſe them by Slips, without Roots.] Having fill'd Pots or Baskets with Earth, half Kitchin-Garden Soil ſifted, and half Mould; bury the *Slip* taken from the Mother-Plant Stock half its Length in the Ground; preſs the Earth about it, and water it, and carry the Pots or Baskets into a ſhady Place: Let them ſtand there till you perceive the *Slips* have taken Root; and when they begin to ſhoot forth, ſet them where they may gradually feel the Influence of the Sun.

This is to be done when their Flowers are paſt; and theſe *Slips* are to be choſen out of thoſe Stalks that bear the Flowers.

Tho' theſe Plants are thus rais'd in Pots or Baskets, yet thoſe are but as a ſort of Nurſery to them; and they are to be tan out and tranſplanted, becauſe they will require more Room than the Pots or Baskets can allow, unleſs they are very large.

Soil.] This Plant loves a Soil pretty ſubſtantial.

50. PINNATED.

PINNATED *Leaves* are thoſe Leaves of Plants that are deeply ſhagged or indented, and have their Parts reſembling Feathers.

51. *The* PIPE-TREE, *ſee* SYRINGA.

52. PISMIRES.

PISMIRES or *Ants*, are very injurious to a Garden, by feeding on the Fruits.

In hot Countries, as *Italy*, *Spain*, and the *Weſt-Indies*, theſe Inſects are reckoned among the Peſts of the Field; though they are by *Solomon* commended as the Emblem of Knowledge and Induſtry. The *Egyptians* made uſe of them, as the Hieroglyphick of Knowledge, every one of them laying up his Store for the Winter; and although they want themſeves, never robbing his Neighbour.

To keep them from injuring Trees, ſome adviſe to encompaſs the Stem of the Tree four Fingers breadth, with a Circle or Roll of Wool newly plucked from the Belly of a Sheep, or elſe to lay Saw-Duſt round the Tree.

Others direct to anoint the Tree round with Tar; but Tar being prejudicial to Trees, Mr.

Mortimer prefers human Ordure, which, he is of Opinion, would be of more Efficacy becauſe, if it be put into their Hills, it will kill them.

Some direct to have Boxes made full of Holes, with a Bodkin, and to put Powder of Arſnick, mixed with Honey, into the Boxes, and to hang the Boxes on the Trees, and they ſay, it will certainly deſtroy them; but Care ſhould be taken not to make the Holes large enough for a Bee to get in, leſt it deſtroy them too.

Another Way is to hang Glaſs Bottles in the Trees with Honey and Water in them, and this will attract the Piſmires, which you may ſtop up and waſh out with hot Water; and then uſe them as before.

Watering Alleys or green Walks often will either drive away, or deſtroy the Ants that are amongſt them.

Mr. *Collins* directs to lay broad Stones on the Borders in Winter, and not to diſturb them till the *Peaches* begin to leaf out, and then to turn up the Ant-hills, and to pour ſcalding Water through a watering Pot on them, and their Skins being thin this will deſtroy ten thouſand in a Minute; for all you touch die; and that if a Quantity of them remain in the Beginning of *March*, then about ten in the Morning you may perceive them muſtering their Troops cloſe to a *South* Wall, if the Sun ſhine, and then you may ſcald them as before.

53. PISTACHIO.

THE *Piſtachio*, Mr. *Bradley* ſays, may be planted againſt Walls expoſed to the *South* Sun, and there it will thrive very well.

54. PISTILLUM.

THE Chive or fine Thread of a Flower, or the little Knob which grows on the Top of this Thread.

55. PITCHUMON, *or* PERSIMON PLUM.

THIS is a *Virginian* Plant growing to the Size of a *Cherry-Tree*. The Wood of the Tree is white, the Leaves on the upper Side of a ſhining *green* Colour; the Fruit ſomething reſembles a Medlar, having ſeveral Seeds in it. When the Fruit is ripe it is ſoft and luſcious.

This Plant loves a light Soil and but little Water; may be propagated by ſowing the *Seeds* in *March*, on a hot Bed. It requires to be houſed with the *Orange-Tree*.

56. PLANIFOLIOUS.

PLANIFOLIOUS Flowers are ſuch as are ſet together in circular Rows round the Center, and whoſe Face is uſually indented, notched, uneven and Jagged, as in the *Hierachia Sonelis*.

57. Seminal Plants.

THE *Seminal Plant*, is that which lies miniature in every *Seed.*

58. Planting.

To prepare Trees for planting.] IN order to prepare Trees for planting, two Parts are to be regarded, the *Head* and the *Root.* As to the *Head* there are two Things to be done, according to Monſ. *Quintiney.*

Firſt, As to the Head.] In as much as a Tree is prejudiced and weakened, and its Vigour and Activity abated, for ſome time, in plucking of it up, therefore the Head is to be diſburthened, in Proportion to the Strength and Activity it has loſt.

Secondly, The Body muſt be left no higher than is convenient for the uſe the Tree is deſigned for; as thoſe that are deſigned for Dwarfs and Wall-Trees, muſt be kept pretty ſhort; whereas Standards, that are to produce their Fruit very high, muſt be left of a Height ſuitable.

As to the Roots.] All the Fibres are to be cut off as near to the Place from which they ſprung, as may be, except the Trees are to be replanted the very Moment they are pluckt up. Otherwiſe the Air will turn all the young Roots and Fibres black, and of conſequence ſpoil them. But if it be replanted again immediately, then ſome of the Mould may be taken up with the Root, and the hairy and fibrous Part of the Root being well ſpread, they need not be ſo cut off.

But as to theſe that are taken up ſome Time before they are planted, the Fibres being all taken away, you will be better able to ſee the bad ones that they may be regulated; and if the Root of a Tree ſhould happen to be any thing too much dry'd, than before it is planted, it ſhould be ſteeped for ſix or ſeven Hours in Water,

What may be accounted good or bad Roots.] By good and bad Roots is not only meant ſuch as are broken, unbark'd, rotten or dry, but that which is of more Conſequence; for every Tree that ſtands in a Nurſery ſhoots out either all *good* Roots or *bad* ones, or both *good* and *bad.*

A Tree, when it is replanted, muſt ſhoot forth new Roots, or elſe it will die, all the old Roots being of no Service to it; and ſome of theſe new Roots will be fair and thick, and ſome feeble and ſmall; and of theſe Roots theſe are only to be valued that are freſh and new and well plac'd.

All theſe young ones muſt be kept ſhort in Proportion to their longeſt. The longeſt in *Dwarfs* never to exceed eight or nine Inches, and in Standards not above a Foot. Indeed as to *Mulberries* and *Almonds*, their Roots may be left of a greater Length, becauſe the Roots of *Mulberries* are very ſhort, and thoſe of Almonds very dry and hard.

hard; and for that Cauſe, if they ſhould be cut too ſhort will be in Danger of periſhing.

After the Length of the biggeſt Roots is fixed, the leſſer or feeble ones will be long enough, if they be three or four Inches, in Proportion to the bigneſs of each, the leaſt always to be the ſhorteſt,

One ſingle Rank, or Story of Roots will be enough, and alſo two or three good Roots, if they be well placed round the Foot of the Tree, will be better than the middling ones.

How and when to plant Trees.] The common Seaſon for planting is from the End of *October* to the Middle of *March*, and in dry and mild Weather; Rain being apt to make the Mould of the Conſiſtence of Morter, ſo that it will not ſettle well about the Roots, but leave ſome Vacancies between the Earth and ſome parts of the Roots.

And tho' any of theſe Months may ſerve indifferently well, yet it may be better to plant ſooner than later. In a light Soil preſently after *Michaelmaſs* may be beſt; but the End of *February* may be ſafeſt in a cold, moiſt Soil, becauſe in the laſt, the Trees can do nothing all the Winter, and will be more likely to be ſpoil'd than be able to preſerve themſelves; whereas in lighter Ground, they may begin to ſhoot out ſome ſmall Roots, even the very ſame *Autumn, which will conſiderably* adorn them the Spring following.

The Holes being opened, and Plants laid each to its Place, ſink them half a Foot; that is, let the End of the loweſt Root be but half a Foot deep in the Ground, becauſe you may expect the Ground to ſink another half Foot, and it is much ſafer to plant too high than too low; and in ſome Months time the Trees will be ſunk ſo as to be a Foot deep in the Earth, and that is the moſt proper Meaſure that can be aſſigned. Thoſe Trees that are planted deeper uſually die in a few Years.

Another thing to be obſerv'd in planting is to turn the principal Roots of the Trees to the good Soil: for though all Trees that are deſigned for Dwarfs ſhould ſtand upright; yet if the Roots of theſe are ſo diſpoſed, as to be naturally inclined to ſpread round, and require that the Tree ſhould ſtand a little ſloping, in order to let their Roots have that good Situation that they ſhould have, it muſt be allowed.

If Trees are to be planted along the Side of a Wall or Alley, the principal Roots muſt not be turned to the Alley. If they are to be planted againſt a Wall the Roots ſhould be ſo placed that none of them may in vain ſpend their Vigour againſt the Wall.

You ought to plant Standard Trees a little deeper than you do others, they ſhould ſtand full a Foot deep in the Earth; and it may be proper to preſs the Ground againſt the Feet of them to faſten them; alſo trampling is not good for over ſmall Trees, to make them ſink too deep. Standards do require a greater Depth, and preſſing down the Earth to make them the better reſiſt the Violence of the Winds.

After the Trees are planted, a Bed, of three Inches thick, of Dung being laid over them, will be very uſeful; this Dung may be covered with Mould to hinder it from being ſeen.

The Deſign of the Dung is rather to prevent the Roots of Trees from being ſcorched with the burning Heat of the Months of *April*, *May* and *June*, than to improve the Ground which is ſuppoſed to have been firſt prepared.

If Dung be not eaſily to be had, the Foot of the Tree may be covered, during theſe Months, with green Weeds, Fern, *&c.* And every thing ought to be prevented from growing that would either ſhade or cloud the young Shoots. And if it happens to be a very dry Seaſon, it may be convenient to give them, during the three or four hot Months, each a Pitcher of Water every Fortnight, being poured into a circular Trench round each Tree, that the Water may penetrate to the Root. Theſe Trenches ſhould be filled up again after the Water has been ſunk in: But if there be Rain there is no need of watering.

Of Trees planted for Reſerves.] Becauſe ſome Trees may happen to die, it will be requiſite to provide a Number of Trees of every Sort, planted in Oſier Baskets, to ſupply their Places; but a greater Number of *Stone* Fruit than *Kernel* Fruit, becauſe the *Stone* Fruit is the more hazardous.

Theſe Trees in Baskets ſhould be kept in the Shade, either ticketed or ſuch an account of them kept in a Book, that if there be Occaſion any Tree that dies may have its Place ſupplied with one of the ſame Kind.

Thoſe that are in the Reſervatory Baskets, and deſigned for the *Walls*, ſhould be kept in a leaning Poſture, and thoſe for *Dwarfs* in an upright one; ſo that when planted with their Baskets they may have their proper Poſtures.

This tranſplanting of *Reſerve-Trees* may be done till *Midſummer*; and before they are removed they ſhould be watered, and the Earth ſhould be removed away neatly round the Basket, ſo that if they ſhould have ſhot any Roots beyond the Basket, they may not be broken.

This is beſt to be done in rainy Weather, or at leaſt when it is mild and temperate, and when the Sun is low, or ſet, or before Sun riſing. Care ought alſo to be taken not to ſhake the Trees in removing them for fear of looſening the Roots.

If any of the Roots have come through the Basket, theſe ſhould be preſerved, well placed, and ſupported with good Mould, and being covered, the Earth ſhould be rammed cloſe to the Basket; then the Earth muſt be plentifully watered round about the Basket, that the Earth may cleave cloſe to it.

When the Sun ſhines hot, the Heads of the Trees are to be covered with Straw Skreens, till they begin to ſprout, and then they may be taken off at Night; but this needs not be done, but when you perceive ſome new Roots have ſprouted out of the Baskets, or when the Trees have been ſhaken and looſened.

Theſe Baskets ought to be proportioned to the Roots of the Trees, that there may be about three Inches diſtance between the Baskets and the longeſt of the Roots, that good Mould may be put in.

The Baskets for *Dwarfs* muſt be bigger than thoſe for Walls; and thoſe for *Standards* muſt be bigger than thoſe for *Dwarfs*.

Mr. *Switzer* directs, to plant from the middle of *October* to the Middle of *March*, but not in froſty Weather. He prefers the *Autumn* before the *Spring*, becauſe the Trees by ſtanding the Winter will be better fixed and ſettled, to bear the Violence of the Winds and Droughts of the *Spring*.

Thoſe Trees that are planted againſt a Wall, if it be ſeven or eight Foot high, he would have planted at fifteen or ſixteen Foot Diſtance. If the Wall be ten Foot high, then the Space of twelve Foot may be ſufficient: But as for *Apricocks*, *Plums* and *Cherries* they ſhould be planted at a greater Diſtance than *Peaches* or *Nectarines*.

If the Ground be not very good, he directs to inrich it before you begin to plant. The Holes are to be firſt digged about three or four Foot ſquare, and two Foot deep, and then to be filled up again with good Compoſt of Dung and Mould. If it be a *hungry Gravel* or *Sand*, then a proper Compoſt will be rotten Horſe Dung, and Cow Dung, mixed with rich Mold. If the Ground be a *Marle* or *ſtiff Clay*, then a Compoſt of Rubbiſh, Lime, ſmall Pieces of Brick and Tile, Coal-Aſhes, and drift Sand, mixed with the Dung and Mould, will do well.

The Holes are to be filled with this half a Foot higher than the reſt of the Level, and the fineſt Mould at the Top is to be preſerved to plant the Trees in: But the moſt agreeable Soil for the Roots of all young Trees, he accounts untry'd earth to be, ſuch as has been digged from a Waſte or Common.

The Trees being taken from the Nurſery, you muſt ſhorten the larger Roots to about ſix Inches of the Stem, and all the Fibres are to be taken off: You muſt alſo prune the Head, ſo as to leave not above two Branches; and thoſe you muſt reduce to ſix Inches above the Place of grafting; and a ſingle Branch is enough for a Head; and this pruning may be performed at any Time before it begins to ſhoot in the Spring.

Thoſe Trees that are planted againſt a Wall ſhould have their Roots ſet as far from the Foundation of the Wall as the Top will allow; and by being ſo planted, the Root will have more Room to ſpread backwards, and the Tree will thrive the better.

Having planted the Trees with the Heads ſpreading againſt the Wall, fill up the Holes with the Mould, and if the Trees are young and tender, fill the Soil in the more gently.

When the Trees are planted, lay half rotten Dung round them for three or four Foot every way, and Fern, or Straw, upon that five or ſix Inches thick to ſecure them from the Froſts: But in Summer time a ſmall Quantity of Sand and pebble Stones being laid round them, at a little Diſtance, will keep the Roots cool and moiſt.

Where the Trees are to be ſet in Borders, it is uſual when the Ground is prepared to make a Trench by the Side of the Wall, two Foot deep, and two Foot wide, and to mingle good old Dung with the Earth, and to fill the Trench up lightly with it almoſt as high as the Borders are intended to be, which is to be trodden down ſo that it be not above half full in the Places where the Trees are to be ſet.

But if the Ground be defective in the Bottom, or if a young Tree is to be planted in the ſame Place where an old Tree has ſtood, then the Ground muſt be prepar'd with Compoſt, as far as the Roots of the young Tree need go, or the old one has gone.

It is a very good way to ſet *the Trees ſhallow*, and to raiſe *Earth* about them; tho' if the Soil be warm and dry a little raiſing will be ſufficient; but if it be a wet Clay, you can ſcarce plant too high, nay, altho' ſome of the larger Roots ſhould afterwards appear above the Surface of the Ground; for they will nevertheleſs do very well, if at the firſt you cover them with the beſt fine Mould, (and in this you ſhould allow for the ſetting of the new Earth, which commonly ſinks three or four Inches) and ſecure them for one Year, from the ſcorching Heats of the Sun.

Theſe Directions principally reſpect Wall Fruit.

Mr. *Laurence* adviſes, that if the good Soil be ſhallow, or the Garden lie over wet and moiſt, to lay Tiles or Bricks all over the Bottom of the Trench to ſtop the Roots from ſtriking downwards, and by that means to cauſe them to ſpread into the good Soil: For it is a Rule in Gardening, that the more horizontally either Roots or Branches of Fruit-trees run, the better they will bear.

He alſo adviſes thoſe whoſe Gardens are ſituated on a ſpungy wet or clayey Soil, do make a pretty many Drains, by digging Trenches two or three Foot deep, leading to the lower Ground, and to pour in Pebbles, or any other rough Rubbiſh, and to lay upon theſe ſmall green Boughs, and afterwards to throw the Earth in again upon them.

If the Trees to be planted come from Nurſeries at a Diſtance, he adviſes to prune the Roots by taking off all the ſmall Fibres intirely, and to ſhorten the larger ones to about ſix Inches from the Stem; and if they have in their Carriage received any Gall or Wound, to cut off that Part of the Root; and though two or three Spurs are ſufficient, yet if there be more good ones they may remain, being pruned as before directed.

If by being ſeveral Days out of the Ground they are become dry, he adviſes to lay them a ſteep in Milk and Water, or Diſh-water, for twenty four Hours, which will ſupple the Roots and render them the more apt to ſtrike new Fibres into the Earth, after they are planted; and the Heads muſt be pruned in the Spring. One Branch is enough for a Head, and that pruned to ſix Inches above the Place where they are grafted, or inoculated. Two Branches will not be ſo well to be left.

Of planting Standard Fruit-Trees.] Monſ. *Gentil* directs,

I. That the Trees have a ſtrait Stem, five or ſix Inches in the Girt. If ſlender Trees be planted in a light Ground, they will be too long a raiſing before they bear Fruit.

II. That in a light Ground Standards ſhould be planted eighteen Foot aſunder; but the Diſtance ought to be twenty four Foot aſunder, if there be Dwarf-trees planted between them.

III. Three or four Branches are to be left on the Head of the Trees; theſe Branches may be ten or twelve Inches long, and this will make the Head round the firſt Year.

IV. When you plant Trees refreſh the Ends of the Roots that they may be lively, and ſpread the Roots abroad, cover the Earth, and put it about them with your Hands, otherwiſe the Tree will not ſhoot ſo vigorouſly.

V. If the Earth was dug up in *Autumn*, make the Hole three Foot ſquare, but elſe they ſhould be made ſix Foot ſquare and three Foot deep.

Mr. *Carpenter* adviſes to ſtake them well that they may be kept upright in their Lines, and from being ſhaken by the Wind, becauſe that will break off the young Fibres.

VI. Dung the Foot of the Trees, and water them as Occaſion requires.

Mr. *Bradley* ſays, in order to meet with Succeſs in planting the Gardener ought to conſider the Soil and Situation every particular Tree requires, and to gain the Knowledge how to aſſiſt either of them.

And whereas it is a common Practice, where the Surface or upper Soil is not above three or four Inches thick, and the next Layer of Earth is a ſtiff Clay, to dig Trenches for Beds about fourteen or eighteen Inches deep, and having taken the Clay or Earth out of them, to fill them up with fine freſh Earth. The chief Reaſons given for this Practice are, that the Surface or firſt Layer of Earth was not deep enough, for the Nouriſhment of the Trees, and the ſtiff

Clay below it would be very pernicious to the Roots of the Trees, that ſhould ſtrike into it. This Practice is liable to this Inconvenience, that when the Wet falls, theſe Trenches in the Clay receive the Water, and hold it as tho' it were in Baſons, and ſo make the Earth that was put into theſe Trenches perfect Mud, becauſe Clay or Chalk will not admit Water to paſs through it; therefore unleſs the Plants were ſuch as naturally delighted to live and grow in Water and Bogs, it would be next to a Miracle, if they ſhould live and thrive in trenched Beds. And altho' there were Drains made from theſe Trenches as artfully as poſſible, yet he has made it his Obſervation, that thouſands have been deſtroyed by this Method of planting; the Wet corrupting and chilling the Earth in them.

It has been likewiſe obſerved, that the Trees planted in Holes dug in theſe ſtubborn Soils, and filled with good Earth, do, when they ſpread their Roots to the Borders of theſe Holes, and touch the Gravel or Clay, begin to canker, and preſently decay.

Mr. *Fairchild* has made this Obſervation, that where the firſt Layer of Earth is not above three or four Inches, and the next either Clay, Chalk or Gravel, that it is not proper to dig into theſe bad Bottoms, but the beſt way is to raiſe the Earth upon *them to* a due thickneſs in the *Places the* Trees are to be planted, or elſe to raiſe Hills of good Earth to plant them on. For that thoſe Trees, which are ſo planted, will turn their Roots, when they come near either the Clay, Chalk, or Gravel, and ſpread them in the Surface, altho' it be not above the Thickneſs of two or three Inches.

Mr. *Bradley* ſays, the ſureſt way to manage ſuch Grounds is to pare off all the Surface, and to lay it for a due time to mellow, and afterwards to lay it in Beds upon the Clay, Chalk or Gravel, and not to trench any of them ſo much as one Inch deep, and by this Method of planting he has experienced Trees to grow well, and are not in Danger of decaying before their natural Time; Whereas if Trees are encompaſſed about with Earths contrary to their Taſte, they ſtarve themſelves into Diſtempers, and die.

Mr. *Whitmil* likewiſe obſerves, that the common Method of planting Trees againſt Walls, that is by planting the Trees ſo near the Wall, that every Part of the Roots has not Room enough to ſpread it ſelf, frequently cauſes them to decay in few Years; becauſe thoſe next the Wall cannot have ſufficient Nouriſhment, except the Vine, which will draw ſome Nouriſhment from the Morter of the Wall, and the *Peach-Tree* which will ſhoot downright into the Earth; yet even the Root of the Peach will want Moiſture in *Summer* and will not always find a proper Earth below to nouriſh it.

The Method he preſcribes is to prepare a Bed about four Foot wide, under ſome well expos'd Wall, and to plant the Trees in the Middle of it, that the Roots may have the Benefit of two Foot of Earth on the Wall Side ; this will afford them Strength to ſhoot equally in every Part and preſerve them in Health.

But then, as it is probable, they will be luxuriant; the Way to cure this Luxuriance and bring them to bearing will be to ſpread the Shoots flat or horizontally, ſo as to make a Covering for the Bed, which perhaps may be two Foot above the Earth ; and theſe Shoots may be directed by a few Stakes and common Arbour Poles. This Method may be ſeen at Mr. *Greening*'s at *Brentford*, and is repreſented by a Copper Plate in Mr. *Bradley*'s General Treatiſe for the Month of *April*.

Tho' Mr. *Whitmil* preſcribes this Method chiefly for Wall *Pear-Trees*, yet Mr. *Bradley* is of Opinion, that the Method would agree very well with every Sort of Tree that is a vigorous Shooter.

And whereas the Trees planted and trained according to Mr. *Whitmil*'s Method ſpread themſelves, he directs to nail up to the Wall all thoſe Shoots that are within Reach of it, and ſo doing, will check the over Flux of the Sap ſufficiently to bring the Shoots to a bearing State, if that were not done by the ſpreading of them on the Poles.

By following this Method a Wall of eight Foot high would be ſufficient for thoſe Trees which would otherwiſe require one of twelve or ſixteen Foot high, and be as advantageous every way ; for firſt of all that Part of the Tree, which ſpreads it ſelf over the Bed, may be ſkreen'd from the Froſt while it is in Bloſſom, by covering it with a Mat, and ſo would produce Fruit, when perhaps the other Part of the Tree, which is nailed up againſt the Wall, will be damaged by Froſts or Blights. In the ſecond Place, the Reflection of the Wall will contribute to the ripening of the Fruit, which is upon the flat Part of the Tree. Thirdly, The Fruits will be well fed, by Reaſon that the Roots have the due Liberty of the Earth, and in dry Seaſons will not be too much expoſed to the Sun ; and fourthly, nothing elſe can grow upon the ſame Border, to rob the Tree of its Nouriſhment.

To plant Wall Fruit-Trees.

Mr. *Collins* directs to dig the Borders againſt Walls, at leaſt three Foot deep, and about four Foot wide, and to take out the natural Soil, all but what ariſes within half a Foot of the Surface, which Earth is to be laid by to help the Border, but to carry away all that comes out deeper than half a Foot, and then to fill theſe Holes with ſo much Turf Mould, that is Turf Mould for five or ſix Inches deep. The Border is to be filled up with this without any Mixture of Dung, becauſe Dung is apt to breed a Sort of *yellow* Worm that in time will injure, if not totally deſtroy, the Roots of what Trees ſoever ſhall be planted in it.

This Border. when it is ſettled, he would have lie about four Inches higher than the Walk.

As for the Time of planting he looks upon *October* the beſt Time, tho' it may be done either in *November*, *December* or *January*; but though thoſe Trees planted in the latter Months will grow, yet being planted ſo late they will not have ſo much of the Winter to impregnate that Quality in their Roots that is neceſſary to their ſtriking early; ſo that they cannot be expected to make either ſo ſtrong or ſo many Shoots as thoſe.

As for *Peaches* and *Nectarines* he adviſes to cut off all but ſix or ſeven of the ſtrongeſt Roots, and to leave theſe at as equal Diſtances as poſſible, and about nine or ten Inches long, and to ſhorten the hairy Fibres to two or three Inches, and to ſhorten by the half all thoſe that are not of that Length.

To plant ſix or ſeven Inches deep in the Ground, and the Bud directly from the Wall, and to cloſe the Mould about the Roots for three Inches thick, preſſing it with the Hand pretty hard, and with the Spade to lay the Mould about an Inch or two higher than the reſt of the Ground, for the Compaſs of half a Yard from the Stock.

As for the Diſtance he thinks about eighteen Foot may be a proper one, and a Vine between them. But *Apricocks* he would have planted at near or about ſeven Yards Diſtance, and the Walls ſhould be near five Yards high; and that Vines may be planted to fill the Spaces between them.

He adviſes to cover the Roots of new planted Trees, and is of Opinion, that new mown Graſs laid for about three Quarters of a Yard about the planted Trees, will ſecure them for the firſt and ſecond Year from being injured by the Heat of the Sun: But he would have this Graſs chang'd two or three Times in a Summer, to prevent any mouldy Smell, or the breeding of noxious Inſects. And when the Heat of the Summer is abated, this may be taken away.

Mr. *Cook* ſays, it is not mixing the Earth with other Plants that will make them change into ſuch Plants as you mix the Earth with, or make the Plant alter to any Purpoſe; for the main Alteration of all Plants is from their Seed; though it may be that mixing ſuch Plants or Shavings with the Earth you ſow *Seed* in, may cauſe them to have ſome Quality of the phyſical uſe of that Plant in them, as it is the Opinion of the Learned, that the *Miſletoe* on the *Oak* and *Polopody* on the *Oak* and *Elder*, on the *Willow*, &c. do partake of the

Phyſical Qualities of theſe Plants they grow upon.

59. Reverse Planting.

DR. *Agricola* tells us, That he has made ſeveral Experiments on the Branches of foreign Trees, as well *Orange* as *Laurel*; which he perform'd after the Manner following: He firſt ſtripp'd the Branches of all the Leaves; then he bent them and ty'd them, dreſs'd them with his noble Mummy, and planted them the Reverſe Way; ſo that nothing was to be ſeen of all the Branches but the great Ends, and kept them during the *Winter* in his Stove.

He adds, That thoſe who have a Mind to raiſe Trees this Way, which he calls *Monſtrous Fruit-Trees*, may raiſe *Apples*, *Pears*, *Cherries*, *Apricocks*, *Peaches*, *Mulberries*, *Wallnut-Trees*, &c. alſo *Roſe-Trees*, *Gooſeberry-Buſhes*, &c. which he directs to do ſomething more at large, as follows: Take thoſe Branches that are furniſh'd with long Side-Branches or Twigs, and bend the Side-Twigs in the Joints towards the great Branches, and tye them together with Baſs or Packthread; then dreſs them with Mummy, either with a Bruſh only near the Ligature, and here and there on the Joints, or dip them intirely into it: Then having made a deep Hole in the Ground, ſet the Branches in the Reverſe Way, ſo that nothing but the long End of the Branch appears above Ground, the reſt being cover'd with good, fat and well-ſifted Earth. This being done, the little Branches will take Root in the Joints every where; then the Buds will begin to ſhoot, ſo that you may ſee fifty or ſixty or more Branches ſpring up, making an agreeable as well as monſtrous Figure.

Mr. *Bradley* makes mention of a *Lime-Tree* in *Holland*, which is now growing with its firſt Roots, in the Air, which have ſhot out Branches in great Plenty, at the ſame Time that its firſt Branches are turned into Roots and ſuccour the Tree.

But we have no need to go ſo far as *Leyden* for a Proof of this, ſince Mr. *Fairchild* of *Hoxton* has begun to put the ſame into Practice; and he himſelf gives Directions for performing it.

Firſt, To make Choice of a young Tree of one Shoot, either of *Alder*, *Elm* or *Willow*, or any other Tree that will take Root eaſily by laying, and to bend that Shoot gently down the extream Part in the Earth, and ſo let it remain till it has taken Root, ſo that the Plant then will reſemble an Arch or bent Bow above the Ground. When this Top end has well ſtruck new Roots, dig about the firſt Root, and raiſe it gently out of the Ground till the Stem inclines to an upright, and ſtake it up, otherwiſe it will incline to bend.

Then prune thoſe Roots that are erected in the Air, from the Bruiſes and Wounds, which they received in being dug up, and do over with a Bruſh the pruned Parts with the following Compoſition moderately warm.

Four Ounces of Tallow, four Ounces of Bees Wax, two Ounces of Roſin, and two Ounces of Turpentine, melted together in a Pipkin.

After this prune off all the Buds or Shoots that are upon the Stem or Plant, and dreſs the Wound with the ſame Compoſition, to prevent any collateral Shootings, to ſpoil the Beauty of the Stem.

Beſides Care is to be taken that the new growing Roots of this reverſed Plant be well nouriſhed, and therefore that Part of the Shoot, which was the larger, is to be cut away a little below the Earth, that the Stem may be better nouriſhed, and its Roots tranſlated.

Botaniſts give the following Characteriſtick Notes to the chief Kinds of *Plants*, *Herbs* and *Flowers*, or diſpoſe them under the following Claſſes : *Annual*, *Aſperifolious*, *Bacciferous*, *Bulbous*, *Capitated*, *Compound*, *Flowered*, *Corymbiferous*, *Culmiferous*, *Dipetalous*, *Hexapetalous*, *Imperfect*, *Leguminous*, *Monopetalous*, *Multiſiliquous*, *Pentapetalous*, *Perennial*, *Polyanthos*, *Polypetalous*, *Polyſpermous*, *Stellate*, *Tetrapetalous*, *Tripetalous*, *Vaſculiferous*, *Verticillate*, *Umbelliferous*, &c. which I ſhall not meddle with any further in this Place; they being explain'd and to be found in their proper Places Alphabetically.

60. PLASTICK.

LASTICK Power, is a Term us'd to expreſs the Faculty of Generation or Vegetation.

61. *The* PLATANUS.

THE *Platanus* is a very beautiful Tree, grows very well in *England*, loves a moiſt Soil, is rais'd by *Seeds* or *Layers* ; is a fine Tree for Walks, and when they are tranſplanted they ſhould be well watered.

62. PLUME.

PLUME, is a Name given by *Botaniſts* to that Part of the Seed of a Plant, which in its Growth becomes the Trunk : It is incloſ'd in two ſmall Cavities form'd in the Lobes for its Reception, and is divided at its looſe End into divers Pieces, all cloſely bound together like a Bunch of Feathers : And thence it takes its Name of *Pluma* in *Latin*, which ſignifies a Feather.

63. PLUM-TREE.

Plums whence they came.

THEY are ſaid to have been at firſt brought out of *Armenia* and *Syria*, but chiefly from *Damaſcus*, which is about the Latitude of forty two.

The *Plum* is a valuable Fruit, and affords us great Varieties, either for eating raw, bak'd, or in Sweet-Meats. We are furniſh'd with them from *July* till the End of *October* ; but after that Time they do not ripen well, the Sun having too little Influence on them.

Various Kinds.] The *Apricock-plums*, they are of ſeveral Sorts.; the *white* Sort, which is large, round, and of an extraordinary rich Flavour, and is accounted one of the beſt Plums: The *red*, this is like the *Imperial-plum*, is larger than the following, and has the Flavour of an *Apricock*. The *yellow*, which is large and long, but not ſo large as the former, having a dry Fleſh.

2. The *Apricot Jaune*, is a large Plum, is almoſt round and well powdered; is of a *yellow* Colour within and without, like an *Apricock*; it ripens late, but is one of the beſt Plums. Theſe all part from the Stone.

3. The *Brunniolle-plum*, is a ſort of *Perdrigon*; has a *yellow* Fleſh, is good raw, dry'd, or in Sweet-meats.

4. The *Bull-plum*, is a large, long Plum, of a *browniſh red*; it comes early, and bears well, but is not ſo much to be commended for eating raw, but bakes well, and makes good Sweet-meats, but does not part from the Stone.

5. The *Cherry-plum* is of two Sorts, *red* and *white*; they are well taſted, come early, part from the Stone, like the *Damask-plum*; are rais'd by Offsets, and the Stone, and bear well without Grafting.

6. The *St. Catherine-plum*, is a *white*, large Fruit, and more large and flat than long; it ripens late, but has the ſweeteſt Juice, is good to eat raw, but rarely leaves the Stone. It dries well, and *is apt to dry* even upon the Tree. This Kind comes better by a *Sucker* than from *Grafting*.

7. The *Catalonian-plum*, is a large, *white*, very forward Fruit, but does not leave the Stone: It is a Wilding, and bears well without Grafting.

8. The *St. Cyr-plum*, is a *black Damask*, and early ripe; the Juice is pleaſant. It quits the Stone, and may be rais'd from *Suckers*.

9. The *Cloth of Gold-plum*, is a *yellow* Damask, ſtreak'd with *red*, is a fine Fruit, of an excellent Juice, and quits the Stone well.

10. The *Cocks Kidney-plum*, is a ſmall *white* Fruit, ſtreak'd with *red*; a little longiſh, and in the Shape of a Kidney: It does not quit the Stone; it ripens late. The Tree is a great Bearer.

Damask-plums are of ſeveral Sorts; *red*, *white* and of a *violet* Colour: They are all very good, and quit the Stone. They have a rich, ſugar'd Juice. The *red* and *white* are round and ſmall, and the *violet* is ſomething larger and longer.

11. The great *black*, *early Damask-plum*, is accounted one of the beſt; has a *yellow* Fleſh, and leaves the Stone dry. This ought to be grafted and planted againſt a Wall, being apt to drop its Fruit in the open Air.

12. The little *black Damask-plum*, is a good *Plum*, early-ripe, is a great Bearer; may be rais'd either from *Suckers* or the *Stone*, and need not be grafted.

13. The *Italian Damask-plum*, is a large, early, ripe Fruit, &

a *violet* Colour; has an excellent ſweet Juice, quits the Stone, is one of the beſt *Plums*, is not very common, and is ſubject to run.

There are ſeveral Sorts of *Damask-plums*, which come later than the others, and are ſomething more rare.

14. The *Musk'd Damask-plum*, is *black*, and very much powdered, rather flat than round. It has a particular rich Taſte, and may be numbred among the beſt *Plums*: It is call'd the *Cypreſs* or *Martha-plum*.

15. The *Orange Damask-plum* is ſomething like the little *Mirabelle-plum*, in that the Stones are much alike, *i. e.* of a longiſh Make, and ſmall. The Fruit is ſtreak'd with *red*.

16. The great, *green Damask-plum*, is always of a *green* Colour, and round, has an extraordinary rich Flavour: When it is ripe, it quits the Stone.

17. The ſmall *green Damask-plum*, is always *green* when it is ripe; makes excellent Sweetmeats, and the Tree is a good Bearer.

18. The *Twin Damask-plum*; the Fruit always comes double, is pretty large and long, very much powdered, is of a ſweet Water; and is very rare.

19. The *Spaniſh Damask-plum* is of two Kinds; one is quite round, and the other a little longiſh; they are both *black*, and come a little late, but they open well, and are very good.

20. The *red Spaniſh Damask-* *is large*, round, very much red, is not ſo high flavour'd as the others; it readily quits the Stone. The Tree is very beautiful, and an admirable Bearer.

21. The late *white Damask*, is rather flat than round, has a very ſweet Juice: The Stone parts eaſily, like other *Damasks*.

22. The *Damaſquinee*, is a large *white Damask-plum*, ſtreak'd with *red*; it is in Shape rather long than round, is very fleſhy; it ripens pretty late, but is accounted one of the faireſt and beſt *Plums*.

23. The late, large, *violet Damask-plum*, is a very good Fruit, ripens late, and quits the Stone.

24. The great, *red Damask-plum of Tours*, is a good taſted Fruit; ripens late, quits the Stone, and holds in Eating among the laſt *Plums*.

25. The lateſt, great, *black Damask-plum*, is not very high-flavour'd; the Fruit is however beautiful, and laſts a great while, but it does not part freely from the Stone.

26. The *Queen Claudia-plum*, is alſo a ſort of large, *white Damask*, almoſt round; its Fleſh is firm and thick, its Juice is richly ſugar'd; it quits the Stone, and ripens pretty late, but is highly eſteem'd.

27. The *Date-plum*, is a ſort of late *Imperial*; there are two Sorts of it, the *white* and the *red*; the Fleſh is firm, they are good either raw or dry'd: They keep a long while ripe upon the Tree, and open very well.

28. The *Datille-plum*, is of two Sorts; the one *white*, long and narrow; the leſſer of a *vio-*

let Colour, and ſhorter; they are of an excellent Taſte, and open well.

29. The *Diaper-plum*; there are ſix Sorts of it; the *red*, which is large, round, and extremely well taſted; it dries alſo very well. If it be propagated from Suckers, it will bear abundantly; but if it be grafted, it will bear the larger Fruit.

30. The *violet Diaper-plum*, which is a long *Plum*, and very much powder'd, is one of the beſt *Plums*, quits the Stone well, is early ripe, and the Tree is a good Bearer.

31. The *white Diaper-plum*, is a pretty large Fruit, *greeniſh*, the Fleſh is *yellow*, and of a ſugar'd Juice; quits the Stone well, like the *violet Diaper-plum*.

32. The *Empreſs-plum*, is a large, round *Damask-plum*, of a *violet* Colour, very much powdered; the Fleſh is *yellow*, and very agreeable. The Tree is a good Bearer, and ripens one of the lateſt.

33. The *Imperial-plum* is of four Sorts; the *white*, the *red*, the *black* and the *late*.

34. The *red Imperial-plum* is large, long and very much powder'd. It is a good Fruit, either for eating raw, or drying in an Oven.

35. The *white Imperial-plum* is of the ſame Size and Shape as the *red*, but is not ſo good, being ſome Years meally and dry.

36. The *black Imperial Plum*, is a good Fruit, and quits the Stone freely.

37. The *late Imperial Plum*, is a good Fruit, very much powdered, and is the biggeſt and beſt of them. The Tree is a very good Bearer, and will laſt till towards the End of *October*.

38. The *Jeruſalem-Plum*, is a very large Fruit, of a *browniſh violet* Colour, unequal in its Shape, very much powdered, but does not leave the Stone. It is better to pleaſe the Sight than the Palate, to be eaten raw.

39. The *Ilvert-plum*, is a long, narrow Fruit, is always *green*, does not quit the Stone; but makes good Sweet-meats. There is alſo a *red* Sort of it, which is not ſo much in Eſteem; becauſe its Fleſh, which is *yellow*, grows *red* by ſtewing or baking.

40. The *Mangeron-plum*, is a fine, large *Damask-plum*, of a *violet* Colour, is round in Form, opens well; it has a particular Taſte, much to be admired.

41. The *Minion-plum*, is a pretty large, long Fruit, *white* ſtreak'd with *red*; the Fleſh is delicate, its Water very ſweet, it opens well. The Tree is a good Bearer, and the Fruit will hang a long Time ripe upon it.

42. The *Mirabelle-plum*, is a ſmall Sort of *white Damask*; it is well taſted, has a musk'd Flavour, parts eaſily from the Stone, and makes an excellent Sweetmeat. There are two Sorts of it, the large and the ſmall, both of equal Goodneſs.

43. The *Ox-heart-plum*, is of the largeſt Sort; the Skin is *red*, and the Fleſh very *yellow*; it is half as long and as big again as the *Imperial-plum*; but its Fleſh

is not ſo ſolid; it quits the Stone freely.

44. The *Perdrigon-plum*, is of ſeveral Sorts; the *White*, which is large and longiſh, and is a good Fruit, either raw or in Sweet-meats.

45. The *black Perdrigon*, which is a leſs Fruit than the other, has a fine, very ſingular Flavour, but does not quit the Stone. The Tree is a good Bearer.

46. The *red* and *violet Perdrigon*, whoſe Fleſh is firm, and their Juice extremely rich. They do not quit the Stone, but are in high Eſteem for Sweet-meats, or to be eaten raw.

47. The late *violet Perdrigon*, is a good Fruit, almoſt round, has a rich Juice, is eaten in *October*, and quits the Stone.

The *Norman Perdrigon-plum*, is a pretty large, roundiſh Fruit, of a *bluiſh red* Colour; is very much powder'd, quits the Stone, but comes a little late. The Tree is a good Bearer.

49. The *Nantois Perdrigon*, is a large, *red Damask-plum*, of a long Make, like the *Date-plum*, but not ſo much pointed; comes late, will keep upon the Trees ſometimes till the hard Froſts begin.

50. The *Pidgeon's-heart-plum* takes its Name from its Shape: It is *black*, and of a moderate Size, is well taſted, keeps well upon the Tree from the End of *September* to the End of *October*. The Tree is a good Bearer.

51. The *Polonian-plum*, is a *white*, large and longiſh Fruit, is ſomewhat like the *white Imperial*, but much better; it opens well. There is alſo another, of a *violet* Colour, pretty large, and almoſt ſhap'd like the *St. Catherine*; very much powder'd: The Fleſh is *yellow*, and very well taſted; but is one of the lateſt *Plums*.

52. The *Switzers-plum*, is in Shape ſomething like the *Imperial*, but narrower, longer and a little pointed: It is of a *violet*-Colour, quits the Stone, comes late, but ripens well.

53. The *Rhodian-plum*, is a fair, large Fruit, of a *brown violet* Colour, very much duſted, opens pretty well, but ripens ſomething late.

54. The *Royal-plum*, is a large, fair, round Fruit, of a bright *red* Colour; it is very much powder'd, is well taſted, has a long Stalk, and is one of the beſt *Plums*.

55. The *Supreme-plum*, is one of the largeſt Fruits; of a long Make, is *white* ſtreak'd with *red*; it does not quit the Stone. The Fruit comes late, and the Tree has a large Leaf.

56. The *Tranſparent-plum*. It has this Name given it, becauſe if it be held to the Sun, it may be ſo ſeen through, as to diſcover the Stone: It is a handſome, large Fruit, long and *white*, very good, and quits the Stone. It is very rare.

57. The large *violet Damask-plum*, is a long *Plum*, well powdered, and is very much eſteem'd for its Goodneſs, Laſting, and the Tree being a good Bearer.

58. The *Virginian-plum*, is a kind of large, white Damask-

plum; it quits the Stone, and is one of the beſt *Plums*.

59. The *Plum without a Stone*, is a ſmall *black* Fruit, ſhap'd like a Heart, opens well, but has only a Kernel within-ſide. It is a Rarity, but not very pleaſant to the Taſte.

The *French* Author, that gives us this Catalogue, recommends the *Offſets* of the *black Damask*, and *St. Julian-plums*, as the beſt Stocks to be ſet in the Nurſery for Grafting; becauſe their Sap is ſweeter than that of other *Plum-Trees*, which are uſually too ſharp for Grafts to take upon. He means, not thoſe Grafts that are in the *Bud*, but thoſe in the *Cleft*.

He accounts the *St. Julian* the ſureſt for Budding upon; the Fruit which is grafted upon it being more melting than thoſe which are grafted upon other Stocks; whereas the Juice of the *black Damask* is drier, and therefore the *Bud* is not ſo proper for it.

Mr. *Mortimer* gives us this Catalogue.

The firſt ripe.] The *Violet*, *Red*, *Blue* and *Amber-plum*, the *Apricock-plum*, the *Barbary-plum*, the *Cinnamon-plum*, the *Black Damaſcen-plum*, the *Lady Elizabeth's-plum*, the *King's-plum*, the *Matchleſs-plum*, the *Great Mogul-plum*, the *Morocco-plum*, the *Mirabellan-plum*, the *Red*, *Blue* and *Amber Promordian*, the *Spaniſh-plum*, the *Tawney*. To theſe ſucceed,

The great *Anthony-plum*, the *Bole-plum*, the *Bonum magnum*, a fair *yellowiſh green* Fruit, excellent both for the Kitchen and Conſervatory. The *Catalonian-plum*, which is much like the *Muſcle-plum*, The *Cheſton-plum*, the *Damaſco-plum*, the *white*, *yellow* and *red Date-plums*, the *Denny-plum*, the *Diapered-plum*, the *Fotheringham-plum*, the *Grand-plum*, the *Imperial-plum*, one of the largeſt Sorts; the *June-plum*, the *Laurence-plum*, an ill taſted Fruit; the *Marble* and *blue Marble-plum*, the *Muſcle-plum*, the *Nutmeg-plum*, the *Peach-plum*, the *green*, *red* and *white Peſcod-plum*, the *black*, *red* and *white Pear-plum*, the *blue green* and *white Perdrigons*, the *Princes-plum*, the *black* and *white Prunella-plum*, the *Queen's Mother-plum*, one of the beſt Sorts; the *Oſterly-plum*, the *Turkey-plum* and the *Verdock*, which is fit for preſerving.

Beſides, he reckons the following all curious and well taſted Fruit.

The *Amber-plum*, the *Becket-plum*, the *Catholick-plum*, the *Cryſtal-plum*, the *Fryars-plum*, the the *Graſs-plum*, the *white Muſcle-plum*, the *French white Nutmeg-plum*, the *white Prunella-plum*, the *Turkey-plum*.

Of *Damaſcens* there are two Sorts, the *black* and the *white*; of *Bullace*, the *white* and the *black*; the *white* are good for eating in *October* and *November*; the *black* are good for Kitchen Uſes in *December*; they commonly hanging on the Trees till *Chriſtmaſs*.

And alſo a *Cornelian-plum*, or rather *Cherry*: This Fruit may be increaſed by *Layers*, and ſometimes by *Slips* or *Branches*, or by *Stones*; but they will ſometimes lie a Year in the Ground before they come up.

The following *Plums* Mr. *Laurence* accounts deſerving the the beſt Walls; the *Imperial-pear*, and the *blue* and *white Perdrigons*.

And theſe following for Dwarfs and Standards, or *North-Eaſt* or *North-Weſt* Walls.

The *white Bonum magnum* for baking, the *Damaſcen*, the *Drop of Gold*, a *yellow Ruſſet*, the *Fothering*, a good Bearer, the *Muſcle-plum*, the *Orleans*, the *Perdrigon*, *blue* and *white* very good, the *Pear-plum*, the *Queen's Mother*, the *Le-Royal*, the beſt *Plum* that grows, but a bad Bearer, the *Violet*.

He ſays, that *Plums*, if the Stocks be any thing vigorous, ſcarce ever fail to anſwer Expectation, if they be budded; and there is one Advantage in it more than can be had in Grafting, that you may pretty ſurely inoculate any Plum on a *Damſon* or *wild* Plum-Stock; whereas if you graft it on it, it will be ſure to fail.

But you muſt always have regard to the general Rule, not only as to theſe but all other Stocks; that if the Sap does not run well, *i. e.* if the Bark does not readily part from the Wood of the Stock, by the Help of *the* Penknife, it is in vain to pe *for* Succeſs.

Monſ. *Gentil* ſays, *Plums* ought to be prun'd long, and in *February*.

Plum-ſtocks how raiſed.] Mr. *Mortimer* ſays, *Plum-ſtocks* may be raiſ'd from *Suckers* as well as from *Stones*; and the ſame Way, *viz.* by cutting down an old *Plum-Tree*, in *March*, within two Inches of the Ground, and this will cauſe a Multitude of *Suckers* to riſe from the Roots. When they are grown to the Height of half a Yard, cover them a Foot thick with good Earth, and water them in dry Times: In the Winter when they have put forth Roots, remove them into the Nurſery; and in a Year or two they will be ready to inoculate or graft.

You muſt have Regard to the Kinds from whence they proceed, becauſe of the Sorts you graft or inoculate upon.

Mr. *Bradley* adviſes, about *September* to make a Plantation of *Suckers* taken from the Roots of the *Muſcle-plum*, the *black Damask-plum*, and the *white Pear-plum*; which are good to inoculate *Apricocks*, *Nectarines* and *Peaches* on.

Mr. *Mortimer* ſays, all Stone-Fruit ſhould be ſown quickly after gathered; for if they be kept long after, they will be two Years before they come up: If they have not all the Moiſture of the Winter to rot their Shells, the Kernel will not come up. See *Nurſery*.

The beſt Stocks.] The beſt Stocks to be ſet in the Nurſery to graft Plums on, Mr. *Bradley* eſteems the Offsets of the *black*

Damaſk and the *St. Julian*, the Sap of which is ſweeter than that of other Plum-Trees, whoſe Sap is for the moſt part too ſharp for Grafts, to take upon, that is ſuch as are grafted in the Clift, and not in the Bud.

Tho' the *St. Julian* is the ſureſt to bud upon, and the Fruit grafted upon it more melting than that of ſuch as are grafted upon other Stocks; yet the Juice of the *black Damask* is drier, and therefore the Bud is not ſo proper for it.

The Soil.] *Plums* delight in a Soil that is rather dry than wet; and that inclines more to Sand than Clay; and of all Sands the *black* Sand is beſt for them; they come to bearing ſooner, and bear better; and the Fruit is extreamly well taſted.

Plums may be planted either in Standards, Dwarfs, or againſt Walls; but the *blue Perdrigon* muſt always ſtand againſt a Wall, to prevent it from ſhedding its Fruit, which in the free Air it is apt to do,

This *Plum* delights rather in the riſing Sun, than one full *South*, becauſe a full *South* Sun dries its Fruit too much, and cauſes it to fall as ſoon as it is ſet.

As to pruning Plums.] In this part of Culture he adviſes to have a great Regard to the Strength and Weakneſs of the Trees, and according to their Strength, to leave upon them more or leſs Wood.

The large ſhoots ought to be left of a good Length, and the Shoots which are of a middle Size, ought to be left almoſt intire, that the Tree may come to bearing ſoon; eſpecially if *Plum-Trees* are planted in a ſtiff, heavy Soil, in which they are apt to ſhoot too much and bear too little, then you muſt leave the Shoots very long; becauſe if you ſhould prune them ſhort, it would make them ſhoot in a rambling Manner, or elſe make them ſubject to Diſtempers

If the *Plum-Tree* is planted in a Clay or wet Soil, then prune it as little as may be; for theſe Fruits that are inclined to Gum (as the *Plum-Tree* is,) ought to be wounded as little as is poſſible; for *Plum-Trees* are very ſubject to canker, and by that Means the whole Sap will become diſtempered.

Standard-plums ought to be let alone to ſhoot at their Pleaſure: you need only to take care to take out the falſe Wood and remove the Suckers from them. The falſe Wood may be eaſily diſtinguiſhed from the reſt, in that it is long, thin, and of a *greeniſh* Colour.

How to recover decayed Plum-Trees.] When they begin to decay and loſe their Shoots, they muſt be cut down, a little above the Graft, and if that be done they will the ſecond Year ſpring again with Strength, and bear Fruit.

If they be wildings, ſuch as the *Damask*, *St. Catherine*, *Rochecorbon*, *&c.* you may leave a few of the *Suckers* about their Roots; but you muſt not leave too many, for fear of leſſening the old Roots, becauſe every one of the *Suckers* will draw from it, and impoveriſh it, till it is quite ſtarved.

Mr. *Bradley* adviſes, that if *Plums* be planted in a ſtrong Ground, which makes ſome *Plums* to run into Wood, that they (thoſe *Plums* that will do without Walls) be twiſted about a Set of Poles, as is directed for *Pears* and *Peaches*, according to Mr. *Heron*'s Experiment; for the bending of the Shoots will check the Sap, and cauſe them to come to bearing, without pruning, and then they will not be ſo ſubject to the Gum, or to ſpoil.

Mr. *Collins* ſays, *Plums* are to be planted, as *Apricocks*, *Nectarines* and *Peaches* are.

The Winter pruning of Wall-plums.] He adviſes to let the Trees grow two or three Years without pruning, becauſe the Roots will have attained Strength by that Time. And when they are at that Age to cut them down, not leaving above ſix or ſeven Shoots; and thoſe, ſuch as have their Eyes or Buds firm to the Length of ſix Inches; and to nail theſe apart at equal Diſtances, in the Shape of other Wall-Trees, *i. e.* in the Form of a Fan.

For tho' ſome Perſons may be unwilling to part with ſo much of their young Trees, yet they will be made amends by the young Shoots of the next Year, when they will, perhaps, put forth between twenty and thirty Shoots, out of which the beſt and moſt middle ſiz'd Wood may be choſen, and ſo be laid at equal Diſtances, and ſtrait Wood about five Inches aſunder, and probably between four and five Foot long.

Theſe Shoots ſhould not be ſtopped at their Ends for that Year; and as they grow older you ſhould cheriſh the weakeſt of them by leaving their Knots thinner, that they may grow anſwerable to the reſt.

In a little Time you will find that though Boughs of between three and four Foot long from the Bottom of the Tree, may at length maintain their Diſtance, yet the Tree will have Occaſion for more Shoots to continue that Diſtance, when it arrives to a greater Height on the Wall; and at that Time all the other Shoots, for about twelve or fourteen, in the Form of the Tree, ought to be ſhortned a Foot, and by that Means it will throw out double Shoots to ſupply the Diſtance, and ſo on till it is come to the Top of the Wall.

You muſt alſo take Notice, that you are not at any Time to ſhorten any Shoots on each ſide the Trees within three Foot or more from the Ground; nor muſt you let them run forked, becauſe the Sap riſes the moſt freely towards the middle of the Trees; and therefore if you at any Time cut the ſide Shoots near their Ends, in order to cauſe them to put forth double, they will not maintain ſo much as one good ſingle Shoot, nor keep their Length proportionably to the upper part of the Tree.

Though it is the common Practice to perform this *Winters pruning* either at the latter End of *January* or in *February*, yet Mr. *Collins* is of Opinion, the later *Plum-Trees*, nay other Trees in general, excepting *Vines*, the better it will be for them, provided the pruning does not hurt the Bloſſom; the Reaſon he gives is becauſe ſome of the weak Knots of the Wood will be ſubject to decay by the Severity of the Winter.

When the firſt Shoots, which are deſigned for Knots are pruned, they ought not to be left above two Inches long, becauſe other Shoots will proceed from them which will make the Knots larger; and afterwards the Shoots muſt not be left above an Inch and half, or two Inches long at pruning; and this being done, it will in Time bring the Knots ſix or ſeven Inches from the Wall.

The blowing Wood may be diſtinguiſhed by the thickeſt Buds, for thoſe which are deſigned for Leaves grow more ſharp. Thoſe thickeſt Buds, if they are not of an unſightly Length, muſt be left on.

All Wood, which does not come directly forward, muſt be cut off cloſe; becauſe the Lines of theſe Trees being laid at the Diſtance of five Inches, the Wall will be ſo crowded by thoſe Shoots that put forth on either Side of a Branch, that the Sun will not have free Acceſs to the Fruit, to ripen it: And there will be alſo another Inconvenience beſides, that there being ſo many Knots, the Branches will not ſhoot ſo vigorouſly at their extream Parts, nor form ſo beautiful and large a Tree in the ſame Number of Years.

It may ſo happen, that ſome of the regular Knots may fail in Time; if they do, they muſt be cut off, but then you muſt be ſure to take Care to leave them near a Quarter of an Inch at the Body of the Branch. And at this Place it will generally put forth again, and by that means furniſh you with a new Knot.

As ſoon as there is a Certainty that the *Plums* will ſtand, that is, when they are arrived at about half their Growth, you muſt take Care to thin them, as well as other *Stone-Fruit*, or elſe they will injure the weaker Branches and Knots, and then they will bear but every other Year.

If the Head of a *Plum-Tree* ſhould grow larger than the Stock, you muſt open the Stock with a ſharp Penknife and a ſteady Hand, to half its Depth, as near as you can gueſs.

The Summer pruning.] About a Fortnight before *Midſummer*, you muſt take out the rough and ſtrongeſt Shoots of *Plum-Trees*, at the Bottom of their Knots, all over the Trees, nay, even all Shoots, except it be thoſe that are deſigned for Knots, and you muſt cut them even with the Face of the Tree.

Then nail up ſuch Shoots which come from the extream Part of the Branches, leſt they break off.

And you muſt prune off the Top of the Tree, as far from the Wall as the Face of the Tree was left at the *Winter pruning*; and thoſe where the Knots, or Fruit come thick, muſt be ſhortened to give Light to the Fruit.

Of training up Plum-Trees in Hedges.] The Manner of planting *Hedge-plums* is the ſame as of *Hedge-pears*, only the Diſtance need not be ſo great, but at about fourteen or fifteen Foot. When they are planted, you ſhould cut them down to ſix Inches each Shoot, and when you have done that you are to let them run double Shoots at the Ends, till one is produced ſtrong enough, that the other may be taken away; for the Wood of the *Plum-Tree* is more ſubject to blaſt than that of the *Pear-Tree.*

There is alſo the ſame Reaſon for leaving more Knots, yet they muſt not be left in Cluſters.

The Knots of theſe as well as of *Hedge Pear-Trees* muſt throw out on each Side, and it may be convenient to plant ſome few Trees to ſupply theſe Hedges, if any of them ſhould happen to be kill'd.

Theſe Trees, Mr *Collins* adviſes to ſet in Baskets, which in a Year or two may be taken up with the Earth about them, as wide and deep as the Roots

nd.

64. *The* Virginian POKE, *or* JALOP-TREE, *of* Carolina.

THIS Plant dies to the Root every *Winter*, and riſes again in the *Spring*, to the Height of eight or ten Foot. The Pigeons and other Birds are very greedy of the Berries of this Plant. See *Jalop-Tree* of *Carolina*, under Letter J; and there in the Paragraph, *Way of Propagation*, read not *Elder-berries*, but inſtead thereof, read, It is to be rais'd from the *Berries*, &c.

65. POLYANTHOS.

POLYANTHOS, ſignifies a Plant that brings many Flowers.

66. POLYANTHOS.

Various Kinds.] THERE are various ſorts of this Plant, which are generally diſtributed into two Claſſes, *viz.* the *Cowſlip* Kind, and the *Primroſe* Kind.

They are diſtinguiſh'd again by the Names of *ſingle-flowering*, and *double-flowering*, *Hoſe in Hoſe*, *Pentaloons* and *Feathers.* The Colours of the *ſingle-flowering* are chiefly *red*, *white*, *purple*, *yellow*, ſometimes *violet* Colour, and frequently variegated in their Flowers.

The *double* Kinds, are the *double Cowſlip*, the *double Primroſe*, the *double red Primroſe*, the *double Paper white Primroſe*; the Bloſſoms of all which are full of *Petals*, or Flower-Leaves.

Mr. *Bradley* ſays, The *Hoſe, in Hoſe* Kind, has its Bloſſoms one in another without Caſes.

The *Pentaloons* have *green* Leaves about their Bloſſoms, which are ſometimes variegated with the ſame Colours of the Flowers they encompaſs.

The *Feathers* ſeem to have been at firſt deſign'd by Nature for *Hoſe in Hoſe*, and have their Bloſſoms ſo ſplit and curl'd that they ſomething reſemble Bunches of Feathers.

Of theſe there are alſo many Varieties;

Way of Increaſing.] The Method of multiplying theſe Plants, is by *Seeds* ſown in *February*, upon a Bed prepar'd with Earth taken out of old, decay'd, hollow *Willows*.

The *Seeds* being ſown, they are frequently to be refreſh'd with Water, and are to be kept ſhaded from the Sun all *April* and *May*, till the Plants appear above Ground.

In the *July* or *Auguſt* following, the Seedling Plants will be fit to tranſplant into Beds.

They require a Soil ſomewhat Binding, and to be expos'd to the Morning-Sun; and then they will bloſſom the *March* or *April* following.

Theſe Plants are alſo to be multiply'd, by parting their Roots in *Auguſt*.

This Time, Mr. *Bradley* accounts a much better Seaſon for doing that Work, than the *Spring*; *tho' it may be* done at that Time, even when they are in Flower.

The *Primroſe* Kind of theſe Plants bloſſom cloſe to the Ground; and the *Cowſlip* Kind about ſix Inches high.

He adviſes thoſe who would have this Plant in Perfection, to ſow them every Year, and to tranſplant them frequently; for that he has found by Experience, that thoſe *Polyanthos* that he has cultivated, begin to loſe the Beauty of their Colours, if he let them ſtand two Years without Parting, and even then would decline.

67. POLYPETALOUS.

P*OLYPETALOUS Flowers*, are ſuch as conſiſt of many Leaves.

68. POLYPYRENEUS.

P*OLYPYRENEUS Fruits*, are ſuch of either Trees or Herbs as contain two or more Kernels or Seeds within them.

69. POLYSPERMOUS.

P*OLYSPERMOUS plants* are ſuch Herbs or Plants that have at leaſt more than four Seeds in each Flower.

70. POMEGRANATE-TREE.

Deſcription.] THE Pomegranate-Tree is

thus deſcrib'd by Monſ. *Liger*: It is a Shrub, which from its Root ſhoots forth a Trunk, which divides into ſeveral Branches, garniſh'd with ſmall Leaves, and guarded with ſome Prickles; the Leaves are of a *reddiſh* Colour, roundiſh and oblong. At the End of theſe Branches grow fair, large Flowers, compos'd of ſeveral Leaves after the Manner of Roſes, and of a beautiful *red*. When theſe Flowers are gone off, (which does not happen to the *Flower-pomegranate*) a Fruit ſucceeds, which grows as big as an *Apple*, which (according to Mr. *Tournefort*) is adorn'd with a Crown, form'd by the Inciſions or Notches of the upper Part of the Cup. This Fruit has a very hard Rind, of a *dark reddiſh* Colour on the Outſide, and *yellow* within, where are ſeveral little Cells, containing Seeds heap'd upon one another, and cover'd with a *reddiſh* Pulp, very pleaſant to the Taſte.

Various Kinds.] Mr. *Bradley* ſays, we know two Sorts of this Plant, that with the *ſingle Flower*, and that which bears a *double Bloſſom.* The Bloſſoms of each of them are of a moſt beautiful *Scarlet* Colour, and the ſingle ones ſetting frequently for Fruit, and ſometimes ripening with us. They love a light Soil, are propagated by laying down the young Shoots in *March*; and may be tranſplanted either in the *Spring* or *Autumn* Seaſon; and are both hardy enough to withſtand the Severity of our *Win-*

Monſ. *Liger* ſays, There are four different Sorts of *Pomegranates*: The *Pomegranate* with the *double Flower*, the *variegated Pomegranates*, or with tufted Bloſſoms of various Colours, the *American Pomegranate*, and the *Fruit-bearing Pomegranate*.

The three firſt are prefer'd to the laſt, for the beautiful Flowers, which are very ornamental in *Parterres*.

The *Fruit-bearing Pomegranate* will thrive very well in the open Ground; but the other three are more ſenſible of Cold, and therefore are to be planted in Caſes.

It is a Tree that requires a great deal of Nouriſhment; and therefore he recommends the following Soil for them:

Soil.] Mix the beſt Garden-Ground, or ſome Hemp-ſoil; ſift them very well, and mix it with an equal Quantity of the Mould of rotten Cow-Dung, or with the Mould of Hot-beds.

Fill the Boxes with this quite to the Brim, and preſs the Earth down with your Hands, to prevent its ſinking too much afterwards; make a Hole in the Earth fit for the Plant, then having plac'd the Roots in Order, put it into the Hole ſo, that you may almoſt ſee the great Roots when they are cover'd; then ſtrew ſome of the Cow-Dung Mould about an Inch thick on the Surface of the Caſe: Place them in an *Eaſtern* or *Southern* Expoſition.

Way of Propagation.] As to Raiſing them by *Layers*, he directs:

To take a Branch growing at the Foot of a good Tree, long enough to be laid; and having prun'd it ſo, that what is to be laid in the Ground is quite clean, make a Trench or Furrow, lay it in, faſten it down with a wooden Hook, cover it with Earth and water it, and let it lie for ſix Months before you examine if it be fit to be cut off from the Trunk and tranſplanted.

If you have no *Layers* at the Foot, then you muſt chuſe one at the Head; and having prun'd it, lay it in a Pot, open on one Side, of a Breadth wide enough for it to paſs through; and the Pot being fill'd with proper Earth, put it down a little, and then water it: This Pot is to be either ty'd to the Body of the Tree, or to be ſupported ſome other Way.

The beſt Time to lay *Pomegranate-Layers*, he ſays, is in *April*; and in *September*, if they have taken Root, they may be cut from the Tree and planted.

By Slips.] As for Raiſing *Pomegranate-Trees* from *Slips*, he directs:

That in *April*, when the *Pomegranates* are taken out of the *Green-houſe* and prun'd, to chuſe the ſtraiteſt and ſmootheſt Branches, to cut them off to a Foot in Length, to ſcrape the Rind off the Bottom of it a little, about two Fingers Breadth, to pare the Top of it, and to thruſt it down the Depth of four or five Inches into the Caſe of proper Earth; to water it, and leave it to Nature, and it will take Root.

Mr. *Mortimer* ſays, The *double-bloſſom'd Pomegranate-Tree* is eſteem'd the rareſt of all flowering Trees; and both Kinds may be eaſily propagated by *Layers* or *Suckers*.

They love a hot Ground, and a warm Air; and may be grafted on their own Stock or Cyon, that grows from the Roots of the old Tree: That being tender while young, they may be planted againſt a warm Wall; but afterwards are very hardy.

If they are prun'd, they grow up high; if not, they grow into a thick Buſh, full of ſmall Branches, which ought to be thinn'd: They flower in *Auguſt*.

If you would have them bear well, he adviſes, to plant them in a Box or Caſe, that they may be hous'd in *Winter*; and that the Mould they are planted in, ſhould be well inrich'd with Hogs-Dung, becauſe it is Plenty of Nouriſhment that makes them apt to bloſſom: Water them often with Water in which Hogs-Dung has been infus'd. In the *Spring* the young Sprouts muſt be cut off, that the Tree ſpend not it ſelf too much in Wood. It is beſt to keep them to a few Branches.

If you do not houſe them, you may ſkreen them with Mats.

Monſ. *Liger* ſays, The *Pomegranate-Trees* that bear Fruit, do not require ſo much Care and

Pains to be taken about them; for they thrive better in open Ground than in Caſes, provided the Soil be good.

In Order to have large and well-colour'd *Pomegranates*, he adviſes to plant them in Eſpaliers or againſt a Wall, in an *Eaſtern*, or *Southern* Expoſition; and to plaſh up all the Branches againſt a Trellis.

He adviſes, to dig and break up the Ground where they grow; thoſe that are in Caſes with a Gardener's Dibble, and very gently; and thoſe that are in the open Ground with a kind of *Pick-axe*; but with Care not to hurt the Roots. This is to be done for five Months in the Year, beginning at *April*. This is done to eaſe the Roots of the Load that the Heat and frequent Waterings lay upon them, which cauſes a kind of Cruſt that hinders the Water from penetrating.

He adviſes, in hot Weather to water them once in two or three Days: As for thoſe in the open Ground, twice a Week will ſerve.

He adviſes, to prune off all Boughs that ſhoot out too far, which will not only keep them in a handſome Form, but the prun'd Boughs will yield other Branches, that will fill up void Spaces. But the ſhort and well-fed Branches muſt be kept intire, becauſe the Flowers and Fruits grow from them.

He directs, After the firſt Shoot, to nip off thoſe Branches *that ſhoot out too* much, and *thoſe that grow too* near the Stem that ſhoot from it; becauſe they will never be handſome, and only deprive the reſt of Nouriſhment.

He ſays, That all the *double-flower'd* and *variegated* ones, ſhould have no Branches at all at the Foot: And no Boughs ſhould be left upon the Trees, but thoſe that are deſign'd to multiply the Kind.

If *Pomegranate-Trees* in Caſes drop their Fruit, and you think it proceeds from Drought, water them plentifully. If that does not remedy it, it is for Want of due Suſtenance to nouriſh them; then you muſt new caſe them with freſh Earth; and to prevent that Illconvenience, you ſhould every Year take off ſome of the Earth from the Surface of the Caſes, and put on Cow-Dung Mould, or Hot-bed Mould; but at the End of five or ſix Years always new caſe them.

The Cold being a mortal Enemy to *Pomegranates*, thoſe that are in Caſes ſhould be put in a Green-houſe; and the Roots of thoſe in open Ground ſhould be protected from the Froſts, by keeping them warm with Dung, and the Branches with Paliſade-Mats, the Chinks being ſtopp'd with the ſame Dung.

He ſays, the *double-flower'd Pomegranate-Trees*, and thoſe which yield no Fruit, begin to blow in *May*, and continue to do ſo 'till *Auguſt*.

Mr. *Bradley* ſays, He has ſeen ſome headed Plants of each Sort; but he rather adviſes, to plant them in Hedges, or Wilderneſs-Works, where they may be in leſs Danger of the Knife or Shears : And that ſome have made Arbours of them, which are very pleaſant.

The *Pomegranate Tree* loves to ſhoot very long, before it will hold its Bloſſoms for Fruit, which always come at the Ends of the Branches : And therefore the common Practice of Gardeners to lop the Branches, is very injurious, becauſe it deſtroys both Bloſſoms and Fruit, both which have their Excellencies ; the Flower in its beautiful Colour, and the Fruit in its pleaſant Sharpneſs.

71. POMIFEROUS PLANTS.

POMIFEROUS Plants, are ſuch as bear the largeſt Fruit, cover'd with a thick, hard Rind or Bark.

72. POMIFEROUS TREES.

POMIFEROUS Trees, are ſuch as bear their Flowers at the Top of their Fruit, and have their Fruit ſhap'd like an *Apple*.

73. POPLAR TREE.

Various Kinds.] THE *Poplar-Trees*, Mr. *Mortimer* ſays, are much of a Kind with the *Aſpen* and *Abel-Trees* : And there are accounted three ſorts of them ; the *white Poplar*, which is moſt common *with us in England* ; the *Water-Poplar*, the Leaf of which is of a *pale green* Colour, ſhap'd ſomething like the other, but not ſo *white* underneath ; and the *black Poplar*.

Mr. *Cook* ſpeaks of four Sorts of *Poplar-Trees*, the beſt of which is the large *white Poplar*, that has a large Leaf, *white* on the under Side, and which is call'd by the *Dutch* the *Abele-Tree*.

The ſecond Sort is pretty much like the firſt, both in Shoot and Leaf ; it grows pretty plentifully in ſome Places in *England*, and is uſually call'd the *white Poplar*.

The third Sort is that which has ſhorter Leaves and Shoots, and not ſo *white*. This is commonly call'd the *Aſpen*, or *Aſp-Tree*.

Theſe three Sorts require the ſame Ordering.

He has not indeed rais'd any of them from *Seed* ; but he is of Opinion, that they contain a *Seed* in that downy Subſtance which they ſhed in the *Spring*.

Way of Propagation.] Some ſay they will grow of *Chips* ; but that, Mr. *Cook* ſays, is falſe ; and that they will but rarely grow of *Cuttings*.

Mr. *Mortimer* ſays, They may be rais'd by *Layers* or *Suckers* taken from the Roots, which will grow on any ſort of Land ; but thrive beſt on a rich Soil, eſpecially the *Water-Poplar*, that is cultivated like the *Aſpen* and *Abel-Trees* ; which ſee.

They naturally encreaſe very much from the Roots ; but they may be help'd, as in the Article following, that treats of Raiſing Trees.

[illegible] Wood ; their [illegible] Leaves making a beautiful [illegible] when the Sun ſhines [illegible] and being inter- [illegible] other Trees, whoſe [illegible] *darker green*, [illegible] very pleaſing Va- [illegible]

The [illegible] Sort, which is [illegible] the *Water Pop-* [illegible] from the other three, [illegible] Leaves. The [illegible] *wiſh green*, [illegible] Leaves [illegible] *pale green* ; [illegible] the other [illegible] *white* un- [illegible] Trees delight [illegible] Sides of Rivers, [illegible] Ground, or that holds [illegible] very much.

They may be rais'd from [illegible]cheons, from two Foot long [illegible] Thoſe of two Foot [illegible] to ſet for Stubs, [illegible] of eight to be made [illegible]

[illegible] *the ſmall Sets.*] [illegible] ſhould have a *black*, [illegible] breaking out of the [illegible] Knot is to be ſet [illegible] the Ground, and [illegible] The Time [illegible] Theſe [illegible] from half an [illegible] Diameter ; if [illegible] of an Inch, [illegible] weak, and [illegible] and [illegible] And [illegible] ſmall, they [illegible] ſmall [illegible] from [illegible] as [illegible] Mark [illegible] which have [illegible] But if they be young, they have not this burry Knot which is ſo apt to take Root. If they be larger than an Inch Diameter, then the Top of the Cutting will be the longer covering over; and will be in Danger of being decay'd, by the Wet lying ſo long on the Head of the Cutting.

In Order to ſet thoſe from ſix to eight or nine Foot long, that are deſign'd for Pollards: The lower and upper Ends muſt be kept free from Cracks, and cut ſloping off: Theſe may be about two or three Inches Diameter. It is beſt to make the Hole with an Iron-Crow, and big enough, that when the Truncheons are thruſt down, the Bark may not be ſlipp'd up, and ſo parted from the Wood; or you may uſe an Auger to make the Holes, made much like thoſe us'd for boring Pumps; and make the Holes a little larger than the Truncheons; and to prevent the Bark from ſlipping, you may bind it about the lower End with a Bit of Wire. Theſe may be ſet about a Foot and half deep, and if large, deeper. When they are ſet into the Ground, cloſe the Earth well about them, ramming it cloſe.

The beſt Time for this Operation, he accounts the Beginning of *Winter*, except it be a very wet Ground; and then *February* may be the beſt Time.

If the Ground be very wet and barren, he adviſes to make Drains two Spade deep, and three Foot wide, and to caſt the Earth at every two Yards Diſtance; and to ſow it with *Oats* the firſt Year, to mellow the Ground; and the next Year to ſet it with *Poplar*.

The ſame Directions may ſerve for the *Alder*, *Willow*, *Withy*, *Sallows*, *&c.* and in four or five Years Time you may have a good Fall of Wood; and ſo on every fifth or ſixth Year, for many Years after.

74. POPPIES.

POPPIES are of divers Colours; as, the *red*, *purple*, *white*, and ſome *ſtrip'd*, and very *double*; the *double* ones being the only ones uſually cultivated in a Garden: There is alſo the fine *golden*-colour'd one that flowers in *May*, which is moſt eſteem'd. They yield great Quantities of *Seed*, which muſt be ſav'd and ſow'd in *March*; but Monſ. *Liger* ſays, either in *March*, *September* or *October*, If the *Seed* be not gather'd, they will ſow themſelves, and come up without any Culture.

75. PORRACEOUS.

PORRACEOUS is ſaid of ſuch Plants as reſemble a *Leek*, in Colour or Scent.

76. PORTICO.

A *Portico*, in a Garden, is commonly the Entrance into a Summer-houſe, Salon, or Arbour of Lattice-work, and is uſually adorn'd with a handſome

Cornice and Frontiſpiece, ſupported by Pilaſters or Peers; or elſe it is a long Decoration of Architecture, plac'd againſt a Wall, or at the Entrance of a Wood, where the Advances and Returns are but inconſiderable.

A Portico, or Arbour of Lattice-work, ſhould have a handſome Frontiſpiece at the Top; that Part being the moſt remarkable.

77. POTATOES.

POTATOES, Mr. *Mortimer* ſays, will grow indifferently in any Ground, provided it be well dung'd; but that a good, fat, rich Mould is beſt for them.

Mr. *Bradley* ſays, they love rather a ſandy than a ſtrong Soil, tho' he has ſeen them do well in both; but has obſerv'd, that the Roots knot much better, and are ſweeter taſted in Sand.

Mr. *Mortimer* ſays, They are eaſily increas'd to a good Advantage, by cutting the Roots into ſeveral Pieces, and each Piece will grow as well as the whole Root; and may alſo be propagated by *Seed.*

Mr. *Bradley* ſays, That where the *Potatoes* have lik'd the Ground, he has ſeen above thirty Knots or *Potatoes* hanging on the String or Fibres of one Plant.

Way of Multiplying.] The common Way of Multiplying them, is, by ſaving the ſmaller Roots or Knots of them for d, to raiſe a Crop, which in *March* are to be ſet in the Ground five or ſix Inches deep, and ſix or eight Inches apart. That about *Michaelmaſs* they are ripe; and when the Haulm begins to decay, may be taken up; which may be done with a Fork as there is Occaſion for them.

78. *Of* POTTING, *or Setting* Plants, Flowers, &c. *in* POTS.

MONS. *Liger* directs, That Pots for Flowers be three Inches narrower at the Bottom than at the Top, that the Flowers may be remov'd out of them the more eaſily; and to put Gravel at the Bottom of them, that the Water may have the readier Paſſage through, and then fill the Pots to a convenient Fulneſs with ſifted Mould. He rather approves of Gravel than Earth, becauſe the *Emmets* may get into it at the Holes at the Bottom of the Pots, and gnaw the Roots of the Plants.

The Pots ſhould be fill'd with an Earth, altho' light, yet ſuch as is impregnated with abundance of Salts.

As for bulbed Roots, the Bed in which the Bulb is to repoſe, ſhould riſe to within four Inches of the Top of the Pot; and it may ſometimes be more, and ſometimes leſs, according to the Size of the Plant.

If the Pots in which bulbous Roots be planted, are large enough for more than one at a Time, there ſhould be at leaſt four Inches Diſtance between every two, that they may have Room and Nouriſhment ſufficient to arrive at a due Growth.

As for other Roots, the Earth that covers them ought to riſe in the Middle of the Pot, and deſcend ſhelving to the Brims; becauſe it is apt to ſink either by its own Weight, or by being watered, *&c.*

Two Plants of differing Kinds ſhould not be planted in one Pot; becauſe that cauſes a Confuſion diſagreeable to the Eye.

When Plants are potted, they ſhould not immediately be expos'd to a too great Heat of the Sun, eſpecially if the Heats of *Autumn* are not very temperate; but they ought to be kept cool, till they begin to ſhoot.

Sometimes frequent Rains do too much moiſten Plants in Pots; in ſuch a Caſe, the Pots are to be laid along Side-ways, that the Water may drain out, turning the Bottoms to that Quarter that the Wind is in.

When Plants have ſhed their Flowers, perhaps there may be Danger in letting them ſtand too long in the Sun, leſt being too much heated by it, they might be injured as to their future Productions. To prevent this, you may remove your old Pots to ſuch Places where the Influence of the Sun will not be too ſtrong for them.

79. POWDERED.

POWDERED ſignifies the Blue upon Plums, *&c.*

80. LONDON PRIDE.

THIS Plant makes a pretty Show in Borders, and is increaſed by parting its Roots.

81. PRIMORDIAN.

P*RIMORDIAN*, Primitive, Original, alſo the firſt ripe.

82. PRIMROSES.

THE *Primroſe* is an early ſpringing Flower of which there are great Varietys, Mr. *Mortimer* enumerates the *red*, the *ſcarlet*, the *double red*, the *red Hoſe in Hoſe*, the *double pale*, the *ſingle green*, the *yellow*, the *ſingle yellow*. They may either be multiplied by *Seed* ſown in a Bed of good Earth in *September*, which will come up in the *Spring*, or by parting their *Roots*.

Monſ. *Liger* ſays, theſe Plants require a good *Kitchen Garden* Earth, and are to be planted in a warm Expoſition, and a Span diſtance one from another.

33. *The* PRIMROSE-TREE.

THIS Plant is ſo called by the Gardeners, from the Likeneſs the Bloſſoms of it have to the common *Primroſe* in Colour, Shape and Smell. Mr.

[illegible]CUMBENT.

[illegible] CUMBENT *Leaves*, [illegible] Leaves of Plants which [illegible] the Ground.

[illegible]LIFICK.

[illegible]ICK signifies fit [illegible] Generation, apt to breed [illegible]

[illegible]OUS.

[illegible] *Trees*, [illegible] whole [illegible] and fort, [illegible] Middle; [illegible] Flower ac- [illegible] of the Base [illegible]

[illegible] TREES.

[illegible] *pruned*. [illegible] Trees, Mont [illegible] these three Rea- [illegible] makes the Tree [illegible] longer, for that all the [illegible] Branches are lopped off [illegible] but such as are [illegible] necessary either for the bearing [illegible] Tree or Beauty of [illegible] whereas on the contrary, if a [illegible] Tree were never *pruned*, so that [illegible] Branches were let alone [illegible] they would soon drain [illegible] its Sap, and make it die [illegible] short Time.

[illegible] makes it of a handsome [illegible] Shape.

3. It is beneficial to the Fruit; for the Sap not being waſted by nouriſhing uſeleſs Branches, the Fruit has the more Aſſiſtance; and of Conſequence, grows more large and beautiful.

The Time of *pruning* is, according to the Opinion of ſome, when the Leaves are fallen; but Monſ. *Gentil* practiſes the *pruning* of theſe Trees that are *luxuriant* and *vigorous* in *March*, but ſuch as do not ſhoot over vigorouſly in *January*, before the Sap is in Motion; which therefore ought to be preſerv'd intire for them, becauſe they want the Whole of it: But ſuch Trees as do ſhoot ſtrongly and vigourouſly, are to be *pruned* in their Sap, which begins to be in Motion in *March*, in order to diſcharge Part of the Sap, and fortify the Bearers.

Mr. *Carpenter* ſays, that we have learned by Experience, that ſome Trees require another *pruning* between the *Winter* and *Summer pruning*; the *Summer pruning* beginning about the Middle of *May*, and laſting ſome Days in *June*. This middle *pruning* is to be perform'd in *April*, and the Beginning of *May*. The Occaſion of this *pruning* is that ſeveral Trees are blighted by virulent Blaſts, which ſcorch and ſhrivel up their tender Leaves, and alſo kills ſome of their young Shoots, even down to the old Wood. To recover this Damage, this *pruning* is performed as follows.

General Directions for pruning.] 1. All the damnified Leaves *are to be pruned* off, and the young Shoots only are to be ſhortened, though the Blights have not touched them.

2. All the tainted Part of thoſe Shoots that are blighted, are to be *prun'd* off, and the Head of the Tree is to be ſhortened to ſuch a Proportion, as it may reaſonably be thought the Root will require to make the Tree put forth vigorous Shoots again.

3. When this is done, the Earth is to be opened in a Semicircle, about the Root of a Wall Tree, and in a Circle about the Root of a Dwarf Tree; then a little ſhort Mulſh is to be laid upon the Root, and if the Seaſon be dry, it is to be watered once or twice in a Week; and the Branches are to be ſprinkled, either with a Hand Engine, or a fine Roſe of a watering Pot.

Monſ. *Gentil* lays down five Rules to be learnt by thoſe that would underſtand how to *prune* Trees: For this turn to the Article *Branches*.

As for *pruning* of new planted Trees, he gives the following Directions.

1. That when a Tree has given no more than one Shoot, and that ariſes from the Extremity of the Stem, to take it off, and then the Tree will ſhoot out ſeveral good Branches the next Year.

2. If a Tree has produced two Branches on the ſame ſide, then the uppermoſt muſt be cut to two or three Eyes, and the other muſt be cut to the Thickneſs of a Crown Piece, and this will

produ

produce two Fruit Branches: But if the lowermoſt be larger than the uppermoſt then the lowermoſt muſt be cut off, and the ſecond kept and ſhortened to three or four Eyes, and the Stem cut down to it.

3. If the Tree has produced ſeveral Branches, ſome of which are ill ſituated, then the uppermoſt are to be choſen for the Figure of the Tree, and ſhortened to three Eyes, and muſt be ſo diſpos'd as will conduce to the Roundneſs of the Tree, and then the Eyes are to be plac'd on the outſide, and not within, unleſs it be a *Buree Pear-Tree*, which if the Eyes were on the outſide, the Branches would grow too ſtraggling.

As for thoſe Branches that are irregularly ſituated, they are to be *prun'd* to the Thickneſs of a Crown Piece, or elſe cut ſloping, and the irregular Branches cut off.

If the Trees that have been thus *prun'd* ſhould produce handſome Branches the next Year, the ſame Method muſt be obſerved in *pruning* them, having a conſtant regard to the Beauty of the Tree, cutting off the ſtraggling Branches, and preſerving ſuch as are for Fruit, &c.

Trees which have been planted four Years, are ſuppoſed to have produced good Fruit, and good Wood Branches, after they have had the third *pruning*; then the Vigour of the Tree is to be conſulted in retrenching the Branches more or leſs, *i. e from four* to *nine* Inches, taking care to leave the higheſt Eye of every Branch on the outſide, to form the Round the better.

A *Quince-Stock* muſt be *pruned* ſhorter than a *Free-Stock*, becauſe a *Quince-Stock* ſhoots out more Fruit Branches than Wood Branches; and therefore the former are *prun'd* ſhorter, that we may have good Wood Branches, and the other longer, that we may have good Bearers.

Short pruning conſiſts in cutting the Wood Branch which forms the Tree down to two or three Eyes. This is commonly done to weak Trees; for on ſuch no Fruit is to be expected but from the larger Branches; therefore all ſuch as are uncapable of bearing Fruit, are to be retrench'd to ſtrengthen them the better.

A *long pruning* conſiſts in leaving ten or twelve Inches of the Wood Branch, which ſhoots out from the laſt Years *pruning*; this is done to prevent the Tree from running out into too much Wood, and to make it ſhoot out more in Fruit.

If a young and vigorous Tree does not bear Fruit, it ought to have a long *pruning*, which is between ten and twelve Inches. This is to be done in *March*; the falſe Wood and unneceſſary Branches ought to be continued till the next Year, and they will ſuck up a great deal of Sap, and ſo moderate it that the reſt will produce Fruit Branches.

If the Weight of the Fruit bend any Boughs of the Trees downwards, ſome of the ſuperfluous Sprigs are to be cut off the next Spring. The Trees ought not to be ſuffered to grow high, becauſe if ſo, they will attract too much of the Sap from the Fruit; therefore they ſhould be cauſed to ſpread as much as may be.

As for *Gooſeberries*, *Currants* and *Vines*, they for the moſt part bear Fruit on the Branches which they have put forth the ſame Year; ſo that in *pruning* a good deal of the Shoots of the foregoing Year, there will be a greater Quantity of Sap to put forth freſh ones the Year following, if there be but Plenty enough of Buds left for them to put forth at.

But then this Caution muſt be obſerved, that thoſe that grow luxurious in Wood are not apt to bear, and the more is cut off the more they will run to Wood.

As for *Stone Fruit-Trees*, it is general with them to bear on the Branches of the Year foregoing; therefore when you *prune* them you muſt leave a ſufficient Number of ſuch Branches.

There ought not to be more Wounds made in Trees than can poſſibly be avoided, therefore a deformed Branch ſhould rather be extended, than haggled in ſeveral Places. The Boughs of unthrifty Trees ought to be cut ſhorter, and fewer ſhould be left on them than on thriving ones.

All groſs Shoots are to be cut off of *Wall-Fruit*, which will not without much bending yield to the Wall, though they look never ſo well to the Eye; for if they happen to be wreathed or bruiſed in the bending or turning, although it ſhould grow and ſeem to thrive for the preſent yet in time it will decay, and ſpurt out the Sap or Gum, which is the Cauſe of the Decay of many good Trees.

If you *prune* Trees or Vines you muſt leave ſome new Branches every Year, and if there be too many, you muſt take away ſome of the old. This will very much help the Tree and increaſe the Fruit.

When a *Vine* is cut there muſt be two Knots left at the next Interval; for the two Buds commonly yield a Bunch of *Grapes*, and this, not being duly taken care of, is often the Cauſe of the Unfruitfulneſs of *Vines*.

When a Tree, which has been planted, has produc'd two fine well diſpoſed Branches, and alſo ſome weak ones among them they are all to be ſhortened equally, to the Length of between five and ſix Inches: But if thoſe two Branches be irregularly poſited, as both on one Side, or one lower than the other, then you are to preſerve but one of them to begin the Formation of a fine Figure.

If it happens that a Tree does the firſt Year produce five, ſix or ſeven Branches, then it will be enough to preſerve three or four of the beſt, and take all the reſt quite away.

A Multitude of Branches the firſt Year is not always a Sign of Vigour, for they ſometimes prove weak, and from thence it may be concluded that there is an Infirmity in the Roots. Tho' generally in *pruning* a Tree which is vigorous, cannot have too many Branches, if they are well ordered, and a weak Tree cannot well have too few.

It is neceſſary for the Preſervation of Trees, that the Sap of all Trees be kept within due Bounds, and you muſt make an Allowance to ſtronger Trees as well as to weak ones; and for this Reaſon, you muſt leave all ſtrong and vigorous Branches of a greater Length than feeble ones; and you muſt *prune* the Branches of a ſickly Tree ſhorter than thoſe of a healthful one.

It is the beſt Way to *prune* thoſe Trees thas are weak early, that the Sap may not waſte it ſelf on thoſe Parts that ought to be retrench'd: Thoſe Fruit Buds, which are neareſt the End of the Branches, are commonly thicker, and better fed than others.

When you *prune* Wall Fruit Trees you muſt cut off all thoſe Branches which ſhoot directly forward to the Branches from which they ſpring; and in order to preſerve the Trees in their Beauty and full Health, you muſt take the utmoſt Care to keep them from being crowded with Wood; and ſometimes there will be a Neceſſity for taking away even bearing Branches; for *it is not poſſible*, that too great *Number of* Branches ſhould be ſupply'd with Juice, which if they are not, either the Bloſſoms will drop off, or the Fruit will not ripen, but wither on the Tree.

For the Sake of Regularity, you muſt leave a convenient Diſtance between one Branch and another; this Rule is conſtantly to be obſerved in all Manner of *prunings*.

And alſo for the Sake of Light you muſt not let one Branch croſs another, except it be to fill up a Space in the Wall, which will be more unſightly; though you may ſometimes ſuffer a ſlender Branch to ſteal behind the main Body of the Tree or ſome of the larger Branches; and it will be no Offence to the Eye; and at the End of the Year it will gratify the Taſte.

The more you carry the Branches of a Tree horizontally, the more apt and better will the Tree be diſpos'd to bear Fruit.

And by how much more perpendicularly the Branches of a Tree are led, the more inclined the Tree will be to increaſe in Wood.

When ſmall weak Branches ſhoot from ſuch as themſelves, and the third Shoot is ſtrong, you muſt always deal with them as with falſe Wood; and ſometimes it will be a very difficult Matter to ſtrengthen weak Branches without cutting away others that are ſuperior to them, even the upper Part of thoſe they ſhoot from.

Thoſe Shoots that are put

forth in *Autumn*, are always bad and muſt be taken off.

When an old Tree ſhoots ſtronger Branches towards the Bottom, than it does toward the Top, it is a Sign that it is in an ill State of Health. In ſuch Caſe it will be neceſſary to cut it off, and form a new Figure from the lower Branches; but if the Top be vigorous then you muſt cut off the lower ones, except they be well plac'd to remain for the Benefit of the Tree.

In order to preſerve old Trees, when they are very weak, you muſt in a Manner totally diſburthen them, and leave but very few Branches for Wood, and thoſe you do leave, you muſt ſhorten to five or ſix Inches, always taking care, that thoſe that are left be not overmuch waſted. See the Article *Bloſſoms*.

Mr. *Laurence* adviſes in the Month of *May*, to ſhorten over luxuriant Branches in all Fruit-Trees, except Vines, to two Inches of the Place from whence they ſhoot, becauſe the *Winter-pruning* inſtead of leſſening the Vigour of a Tree, gives Vigour to it, and makes it ſhoot the bolder. But the performing this Operation in this Month, when Nature is in her full Career, will give ſuch a Damp and Check to its Courſe, that you may ordinarily expect two or three Branches of bearing Wood from the ſtrongeſt and moſt vigorous Shoot.

This Operation, this Month, of ſhortening all luxuriant Branches, *does not only* reſpect thoſe Branches which are intended to be left to fill a void Space; but vigorous Shoots, which are made from the Place of Inoculation in the Nurſery, as well as thoſe made from new planted Trees, eſpecially *Apricock* and *Peach Trees*, which are apt to be in the greateſt Danger from too much Vigour.

Mr. *Mortimer* tells us that it conducees very much to the Growth of Trees to *prune* them well from their unneceſſary and injurious Branches, and alſo to make them fruitful.

The beſt Time to *prune* Trees he accounts to be in the Decreaſe of the Moon, and in fair Weather.

A Graft, though it ſhoots never ſo ſtrong, muſt be *pruned* the firſt Year.

A *Peach*. the more it runs to Wood, and the ſtronger Shoots it makes, will bear the better.

Wall Trees are to be *pruned* both *Winter* and *Summer*. The *Winter pruning* is to be performed as ſoon as the Leaves are off the Trees; then you muſt *prune* and cut away the Reſidue of the Branches, and place thoſe in order that are fit to be left. This Work you may continue to perform during the whole *Winter Seaſon*, except in the great Froſts: But though the beſt Time is *February* and *March*, this ought to be obſerved, that the moſt vigorous and luxuriant Branches be *pruned* laſt; and the Boughs muſt be cut cloſe to the Body, and not left of any Length from the Tree; becauſe if they are, they will become hollow, and will be of no other uſe but to convey Water to the Tree, and to rot it.

You muſt not ſuffer the Lop to grow large upon the Trees, for it will make the Scars the larger, and hinder the Tree from thriving, or cauſe it to die the ſooner, where you cut them quite off.

Peaches and *Nectarines* are not to be cut 'till they begin to bud; and then you muſt take care to cut away ſuperfluous Branches, or ſuch as croſs one another, or which grow too thick; are broken, or bruiſed, or decayed, or offend any other Tree or Place.

All the *Auguſt Shoots*, whereever they are found muſt be cut away, unleſs the Place be naked, and you think the next old Branch will not be ſufficient to cover it, and the Branches that ſhade the Fruit too much.

The *Summer pruning* is to be performed about *June* and *July*. In doing this you muſt take off the ſuperfluous Sprigs and Shoots of the ſame Years Growth, from *Vines*, *Apricocks* and *Peaches*, and other Trees which put forth large Shoots, which hinder the Fruits coming to its due Maturity, and attract much of the Sap of the Tree to themſelves, and by that Means rob the other.

In *pruning* Trees, and eſpecially *Wall Trees*, you muſt obſerve to leave the ſmall Twigs, which are ſhort and knotted, and that bloſſomed the Year foregoing; for it is obſervable, that moſt *Apricocks*, *Peaches*, *Plums*, and *Cherries*, &c. grow on Sprigs uſually of two Years Growth; theſe therefore muſt not be cut off, but are to be carefully nouriſhed, which is commonly done to beautify the Tree.

As to *Apples* and *Pears* alſo that bear their Fruit on Branches, which are of two Years Growth, it is neceſſary to be frequently taking off ſome of the old Wood of thoſe Fruit Trees, that there be a Succeſſion of bearing Branches: And if the Trees are young, they muſt not be permitted to fill the Wall too thick, becauſe that will be a Hindrance to their Bearing, and lay you under a Neceſſity to cut them too much when they grow old.

When an old Tree puts forth ſtronger Branches at the Bottom than at the Top, and the Top is unthriving, then you muſt cut it off, and bring the Tree into Form from the lower Branches.

All thoſe Buds that have but a ſingle Leaf produce nothing but Wood, but Fruit Buds have many Leaves; and the more Leaves they have, the ſooner they will bear, and the larger the Fruit will be.

Thoſe Fruit Buds, which grow on the Body of a Tree, produce fairer Fruit than thoſe that break out of the collateral Twigs and Tops of the Branches.

Thoſe Buds, which ſpread out either before or behind Wall-Trees, are to be rubbed off.

If you would have Trees be

quickly furniſhed on both Sides, they muſt be prevented from ſhooting in the Middle; and take this for a Rule, the more a Tree is *pruned*, the more it will ſhoot.

Pruning Crotchet-wiſe is a Method very well contrived by Monſ. *Quintiney*, and is done to fill up a Vacancy that disfigures the head of a *Dwarf*. This is to be performed upon a large Wood Branch, which we *prune* to three or four Inches long; this being done, it will produce ſeveral good Branches juſtly ſituated from the Ground; alſo you muſt lay the reſt of the Shoots throughout the Tree at as equal Diſtances as the Number of Shoots will allow.

In the fourth Year, or ſooner, theſe Shoots will from their Sides, put forth ſuch Quantities of bearing Wood, that you will have more than you can nail up at five Inches Diſtance, and ſo will be obliged to take ſome of them off.

You muſt obſerve to nail up all Shoots at five Inches Diſtance, and when you find too many of them, you muſt *prune* all over the Tree, and contrive for the ſo laying of them.

Wall Trees ought, at their firſt *pruning*, to be left in the Shape of a Fan, and ought continually to be kept in the ſame Form, advancing about nine Inches in a Year.

All thoſe Branches which run to Wood, too large for the reſt, are to be taken off, as near the Bottom of the Tree as may be, in the *pruning* Seaſon.

When a *Wall Tree* is come to be of the Age of ſeven or eight Years, you ſhould take it down from the Wall, and cut out ſome of the great Wood, and ſo order the remaining Branches, as to fill up the Spaces you have made vacant by the *pruning*.

Peaches or *Nectarines* being thus managed, Mr. *Collins* ſays, may be preſerv'd in their full Blow, and vigorous in their Shoots for above thirty Years together, and always in the ſame Shape, and much of the ſame Size, at leaſt within about nine Inches, which is the utmoſt Length he allows for the Shoots of one Year, after a Tree is five or ſix Years old.

After a Tree is arrived to the Age of ten Years, he directs, that you conſtantly obſerve not to cut off all thoſe Shoots which break out near the Foot of the Tree, (not in the Stock) but to nail them up to produce new Wood; and this will afford an Allowance for taking out the old Wood.

The Neglect of this, often cauſes *Peach* and *Nectarine Trees* to be naked, and alſo deſtroys them.

In *Winter pruning*, ſuch Shoots as are become barren, by bearing the Year before, muſt not be cut off too near the Branch, but muſt be left the Width of a Crown Piece, for this Reaſon, that at thoſe Places Shoots will frequently put forth.

Altho' he does not allow, that a Tree ſhould ſhoot from its extreme Parts above eight or nine Inches in a Year; yet if there be a want of Shoots to make up the Figure of the Tree, then they may be left longer; but there ſhould rarely be left on them above four or five bearing Knots on any other Shoot.

The Summer pruning of Stone Fruit Trees.] Mr. *Collins* adviſes to look over every Tree about the Middle of *June*, and to take out all the great Shoots cloſe to the Bottom, and to lay in all the fine Wood; and to pull off, from the Shoots, ſo many Leaves as will thin them, and let the Light in to the Fruit.

If any Tree has become naked at the Bottom, on either Side by blaſting, then you ſhould put in a Bud at the Place where a Shoot is wanting; and altho' the Wood, if it be five or ſix Years old, will not of its own Accord ſupply the Places that have been rendered naked, tho' budding will not take on the main Body of the Tree, the Bark being there too thick and too hard, yet it will take very well on the Arms.

If Arms be laid up ſufficiently in the Winter, the Tree will make ſuch vigorous Shoots, that it will require Skill for ſome Years to keep it full of bearing Wood.

And whereas ſome are at this Seaſon, or earlier, for cutting off all thoſe Branches, which grow beyond the Fruit, Mr. *Collins* does not approve of it, except when the Tree ſhoots Abundance of good Wood, becauſe he thinks that to be a more proper Time for it, when great fruitful Shoots are grown five or ſix Inches.

And if the Tree be vigorous then they ſhould be taken off cloſe, but if it be not they ſhould be left about three Inches long, and then the Sap having ſo powerful a Draught there, thoſe Shoots will that Summer put forth ſeveral others, which will be of Advantage, for the future, to a Tree that is weak.

Mr. *Bradley* taking notice that Mr. *Millet* uſed to produce ſome Fruits in good Perfection, ſome Months before Nature would have done it, which he ſeemed to attribute to the Heat he laid to the Backs of his Frames; he did obſerve that he *pruned* his Trees out of the common Seaſon; and whereas he uſed to have his *monthly Roſe-Trees* in Bloſſom ſoon after *Chriſtmaſs*, which he *pruned* after a particular Manner, (the Account of which you may ſee in the Article *Monthly Roſes*,) he had often ſeen in his own Practice, that the Cloſe Buds there ſpoken of would lie dormant all the Winter, (without that Sort of *pruning*) and not ſtir before the Spring advances.

And he adds, that he has obſerved in ſeveral Gardens where the Skill of the *Pruner* has not been very great, that Fruit Trees, being cut too early, or the Shoots of the ſame Summer being topped, the Buds which have been left on have ſprouted on a ſudden before their natural Time, and have proceeded to bloſſom in the wrong Seaſon.

But it is his Opinion, That it is not this Pruning alone that is of any valuable Uſe, unleſs the Bloſſoming Time of ſuch Trees be humour'd with a Degree of Heat, which is ſufficient to carry on the Bloſſoms to Perfection in ripe Fruit.

And for as much as this Degree of Heat muſt be produc'd artificially, it ought to be inquir'd into, How it acts upon the Roots or Branches ſeparately? Or whether it has the ſame Influence on both? And upon this Conſideration, he proceeds to give a Relation of the Effect that extraordinary Warmth, and uncommon Pruning may have upon Plants: And he gives an Account of a *Pear-Tree* in *Moorfields*, that bloſſom'd at an unuſual Seaſon, by *Lime* having been accidentally laid near its Roots. See *Pear-Tree.*

89. PTARMICA: *See* SNEEZWORT.

90. PUDICA PLANTA: *See* SENSIBLE PLANT, *or* HUMBLE PLANT.

91. PULPOUS.

PULPOUS signifies full of Pulp, or Subſtance.

92. PUMPIONS, or PUMKINS.

AS for the Propagation and Culture of *Pumpions*; See the Article *Citruls*, in Letter *C.* Beſides which, take what follows:

Mr. *Bradley*, ſpeaking of the Method us'd by Mr. *Whitmil* at *Hoxton*, in propagating *Melons*, &c. tells us, That Mr. *Lawrence*, Gardener to the Counteſs of *Weſtmoreland*, at *Twittenham*, took the ſame Method of propagating a large Kind of *Pumpion*; and had the largeſt Fruit of the Sort that he had ever ſeen in *England*. His Method is to make his Hot-beds either of Graſs cut and heap'd together, when it is wet; or Straw of any Sort wet, eſpecially if mix'd with ſome Sea-coal Aſhes.

When the Plants are rais'd, and fit to be planted in Ridges, he plants them in a Border under a *South*-Wall, without laying any Dung about their Roots; and as the Plants grow, he gently lays them againſt the Wall, and tacks them up to it; or elſe trains them ſo as to run up ſome Frame; that they may be near to the Wall: And when the Fruit is ſet, he faſtens a Tile to the Wall with a Staple, for the Fruit to lie on; he makes a Hole in the Tile that the Water may run out, that the Fruit may not be injured by too much Wet. The Fruit, being plac'd near the Wall, ripens the better.

Beſides this, to keep all from the Weather, the Lights which belong to Hot-bed Frames, may be ſet ſloping againſt the Wall. The Fruit being thus manag'd, will, in all Probability, not only ripen much better than thoſe that are manag'd after the common Way, but alſo have a better Flavour, eſpecially in a cold, wet Seaſon.

93. *The* PURPLE-FLOWER-GENTLE: *See* AMARANTHUS.

94. PURSLAIN.

PURSLAIN is a very cooling Herb: There are two Sorts of it; the *Golden Purſlain*, and the *Green* Sort. Theſe both, ſays Mr. *Bradley*, are to be rais'd from *Seeds* ſown in ſome warm Place in *April*; or if they have the Help of Glaſſes, may be ſown earlier.

Meſſ. *London* and *Wiſe*, direct for the Propagating of *Purſlain*, as follows: It is multiply'd only by *Seed*, which is *black*, and extraordinary ſmall, and of a half-flat roundiſh Figure, which grows in little Husks or Shells, each of which contain a great many *Seeds*.

In order to gather it, you muſt cut off all the Heads from the Stalks, and lay them to dry a little in the Sun; and then beat out the Seed, and fan or skreen it.

The *Golden Purſlain*, is moſt difficult to raiſe; ſo that in hot Weather it is difficult to make it grow, even upon Hot-beds, and under Bells, for it ſeldom proſpers in open Beds 'till about the Middle of *May*, and then too it muſt be in very good, ſweet, and looſe Earth, and in very fair Weather. And unleſs the Seaſon be a little advanc'd, it will dwindle away as ſoon as it comes up, if the Sun be a little hot, as it commonly is towards the End of *April*. And for that Reaſon, becauſe we are not to begin to ſow it on Hot-beds till towards the Middle of *March*; therefore the *green Purſlain* is only in Seaſon in the Beginning of the *Spring*.

Mr. *Mortimer* ſays, That it is a tender Herb, and is propagated with ſome Difficulty, by Reaſon of the Froſts nipping it: But that, in Order to have it early, it may be ſown on a Hot-bed, or in *April* in any rich Soil, finely dreſs'd; and when the Seeds are ſown, he adviſes to clap the Bed over with the Back of the Spade, and to water it well. That about the End of *May*, the Plants be replanted, and ſet a Foot Diſtance one from the other. Being thus ſown, it will yield fair Plants, either to boil, to pickle, or for Seed.

That for preſerving the Seed, the Stalks muſt be gather'd as ſoon as the Seeds look very *black*, and be laid abroad in the Sun on a Board or Cloth in the Day-time, but taken in at Nights, 'till they be ripe. Some ſay, the Seed of three Years old is better than the new.

95. PYRACANTHA, or EVER-GREEN THORN.

BOTANISTS call this Shrub *Pyracantha*, from *Pyrum*, in *Latin* a *Pear-Tree*, and Ἄκανθος *Greek* of Ἄκη, a *Thorn*, as much as to ſay, a *thorny Pear-Tree*. Its Leaves being like thoſe of a wild *Pear-Tree*, and the Tree being thorny.

Deſcription.] Monſ. *Liger* thus deſcribes it:

It is a thorny Shrub, ſhooting out ſeveral Branches which bear

Leaves like thoſe of a wild *Pear-Tree*; ſome round, indented on the Edges; others oblong, and a little pointed, and of a *darkiſh green* Colour. Along theſe Branches grow Flowers, conſiſting of ſeveral Leaves of a *reddiſh yellow* Colour. The Cup of this Flower is leafy, and becomes a roundiſh Fruit; it is crowned, pulpy, and has a ſingle Capſula, containing ſeveral little Stones, fill'd with oblong Kernels.

This Shrub, Mr. *Bradley* ſays, has many Excellencies which are not found in other Ever-greens of the Parterre; for beſides the Beauty of its Leaves, the Bunches of *white* Bloſſoms which it produces in *May*, are beautiful; and the Coral-like Beads, which hang upon it all the *Winter* in Cluſters, afford a moſt delightful Proſpect; and beſides all theſe, the Strength of its Thorn makes it one of the moſt uſeful Plants for Hedges. It delights in a dry, gravelly Soil. Tho' Monſ. *Liger* ſays, it takes with all Ground, and all Expoſures.

Way of Increaſing.] This Plant may be rais'd either from *Berries*, *Cuttings* or *Layers:* Mr. *Bradley* directs, That the *Berries* when they are full ripe, ſhould be order'd like thoſe of the *Holly*, for they uſually lie as long in the Earth. Therefore, he adviſes, to give them to Fowls to eat before they are ſown, that by being paſs'd thro' their Bodies, they may be the better prepar'd to vegetate and come up the ſooner.

He ſays, It has been obſerv'd in *Devonſhire*, That thoſe Sorts of Fowls that feed upon theſe *Berries*, ſcatter them over the Country, where they vegetate exceedingly, and abound very much: But being Plants which have but a few Fibres at their Roots, they are difficult to be tranſplanted; therefore they ſhould be planted out into the Places in which they are deſign'd to grow, by that Time they have come up and ſtood a Year or two at moſt.

In Multiplying theſe Plants by *Cuttings*, you muſt ſet the tender Sprigs in Pots of fine Earth; water them frequently, and keep them ſhaded from the Sun 'till the *Winter* following; and then a warm Expoſure will prepare them to ſhoot ſtrongly in the *Spring*.

He alſo ſays, Theſe Plants thus rais'd, will be more eaſily tranſplanted, and with leſs Hazard, than thoſe that are rais'd either of *Seeds* or *Layers*.

To raiſe theſe Plants from *Layers*, you muſt lay down only ſuch Branches as are tender, and of the laſt Shoot; becauſe the more woody Branches will not ſtrike Root. The ſame Rule muſt be obſerv'd in Laying all Manner of Ever-greens.

He ſays, That he has ſeen of theſe Plants, that have been train'd into Balls and Pyramids, which have been almoſt cover'd with the *ſcarlet Berries*, in the *Winter*-Time, when Nature ſeem'd to be at reſt in other Things. And alſo, that if it be rightly manag'd and kept from Dung and other rich Manure, (which will deſtroy it) it will grow to be a large Tree.

Mr. *Mortimer* ſays, This Tree is a quick Grower, and deſerves a principal Place among thoſe us'd for Fences, by Reaſon of its very ſtrong and firm prickly Branches, and Ever-green Leaves: But that it thrives beſt in Standards; becauſe, by often clipping, it is apt to grow ſticky. That the *Berries* hang on the Tree moſt part of the *Winter*, and lie as long in the Ground before they ſpring as the *Haw-Thorn-Berries*.

Mr. *Liger* ſays, It is us'd in Gardens for forming Palliſadoes, which indeed are very pretty; and for making Hedges for ſeparating the great Knots one from the other. And Mr. *Bradley* has ſo high a Value for it, that was he to make a *Winter*-Garden, the *Pyracantha* ſhould be no ſmall Contributor to the Ornament of it.

QU

1. QUEEN'S-GILLIFLOWER: *See* GILLIFLOWER.

2. QUICK-BEAM, *or* WILD-SORB.

THIS Plant, ſays Mr. *Mortimer*, is by ſome call'd *The Iriſh Aſh*, and is a Species of *wild Aſh*, reſembling the *Aſh* both in Bark and Leaf, except that the Leaf is ſomething ſmaller and longer, in Proportion to its Bigneſs, and is jagged on the Edges; and that the Tree bears *red Berries*, inſtead of *Keys*. Theſe *Berries* are preceeded by *Bloſſoms* of an agreeable Scent.

He ſays, They delight to grow on Hills and in Woods, and in any dry Ground; and are more common in the *Northern* Parts of *England* than the *Southern*: And that they thrive without Shelter upon dry, ſtony Land, and upon the coldeſt, bleakeſt and moſt expos'd Parts of the *Peak-hills* in *Derbyſhire*.

He ſays alſo, They are beſt rais'd of the *Berries*, as ſoon as they are ripe, which is in *October*. They muſt not be cover'd with the Earth above an Inch deep. But he did not know whether they come up the firſt Year, or like the *Aſh*, lie in the Ground 'till the following *Spring*.

In Tranſplanting, they are to be order'd as the *Aſh-Tree*.

3. QUICK.

MR. *Mortimer* directs, That when you plant *Quick*, you ſhould conſider the Nature of the Land you plant in; as whether it be *Clay*, *Sand*, *Gravel*, *&c.* and what Sort of Plants will ſuit beſt with each Sort of Soil. It ought alſo to be conſider'd, what Sort of Soil the Plants are taken from, whether it be worſe or better than you deſign to plant them in; or elſe it will be difficult to cauſe them to grow well.

As for the Manner of Planting the different Sorts of *Quick*; ſee the Articles, *Fences*, *Hedges*, *Juniper*, *Thorn*, *Furz*, *&c.*

4. Quince-Tree.

QUINCES are ſaid to have been brought to us from an Iſland in the *Archipelago*, in the Latitude of about thirty ſeven Degrees: They grow well in *England*; but ripen late.

Various Sorts.] Mr. *Mortimer* mentions five Sorts of *Quinces*:

1. The *Portugal Apple Quince*, which is a large, *yellow* Fruit; tender, pleaſant, and ſoon boil'd, and is eſteem'd the beſt.

2. The *Portugal Pear Quince*, which is much like the former, except in its Shape.

3. The *Barbary Quince*, which is leſſer than the other; as is the *Engliſh Quince*, which is a very harſh Fruit, and cover'd with Down or Cotton.

4. The *Lyons Quince*, which is a large, *yellow* Fruit.

5. The *Brunſwick Quince*, which is a large, *white* Fruit: Both the laſt are very good; but the two firſt Sorts are the beſt of all.

Soil, Way of Propagation, &c.] *Quinces* delight in a moiſt Soil; may be rais'd of *Slips* or *Layers*, or of *Cuttings*; or they may be Cleft-grafted in their own Kind; or they may be inoculated, which will make them bear the ſooner.

If you have a *Quince-Tree* that grows ſo low, that you can bring it to the Ground, either by Plaſhing, or otherwiſe, Mr. *Mortimer* adviſes, to do it the Beginning of the *Winter*; and to cover it with Earth, except the two Ends of the Boughs; and every Twig will put forth Roots, which being tranſplanted, will make a Tree.

If *Quince-Trees* are planted on dry Ground, they ſhould be planted in *October*.

They are better grafted in the Stock than in the Bark.

Mr. *Bradley* ſays, That for the Generality *Quinces* are too harſh in moſt Parts of *Europe*, to be eaten raw; which makes him apt to ſuſpect, that ſome of them might have their Original ſeveral Degrees more *South* than *Crete*. And that there is in *Portugal*, a Sort of *Quince* that is fit for Eating raw, as ſoon as it is taken from the Tree; and, as he has been inform'd, is a very pleaſant Fruit.

And tho' he has not heard of any Perſon that has try'd them againſt a Wall; yet, perhaps if they were planted againſt a good *South* Wall, they might be very much amended; or be improv'd by his new Propoſition for Ripening Fruit: (See the Article *Ripening*.) Or if we had the Sort mention'd, from *Portugal*, perhaps they might be brought to the ſame Perfection.

Quinces, he ſays, are rais'd either from *Cuttings*, *Layers* or *Suckers* taken from the Roots. The *Cuttings* may be planted in *November*, and they will readily ſtrike Root. The young Twigs may be laid into the Earth in *February*.

The Tree loves a moiſt Soil and the Shade; is a natural

Fruit, does not require Grafting, and comes early to bear.

Mr. *Mortimer* ſays, the beſt and moſt expeditious Way, to raiſe a great Number of *Quince-ſtocks* for a Nurſery, is to cut down an old *Quince-Tree* in *March*, within two Inches of the Ground, and a great Number of *Suckers* will riſe from the Roots. When they are grown half a Yard high, he adviſes, to cover them an Inch thick with good Earth, and to water them when the Seaſons are dry. In the *Winter*, as ſoon as they have put forth Roots, they may be removed into the Nurſery, where they will grow in a Year or two ſo, as to be fit to graft with *Pears*.

Mr. *Collins* ſays, Whereas *Quince-Stocks* are uſually budded or grafted on, he thinks they are not ſo good for this Purpoſe. That a *Free*, (*viz.*) a *Pear-ſtock* produces a finer Tree, longer-liv'd, and better Fruit.

He adviſes the Planting only the *yellow Quince*; but to reject the *green* one.

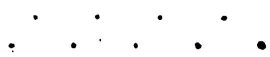
And whereas it is a vulgar Tradition, That there is a great deal of an Aquatick Nature in a *Quince-Tree*, he has found by Experience quite the contrary.

He adds, That he had two Trees out of a Parcel, to be planted on a ſmall Iſland, which was a very good Soil, and had been made ſo by Mud caſt out of the Mote. His two Trees were planted on a high Ground, and at the End of ten Years, were thicker than the Calf of a Man's Leg; whereas there were none of his Neighbours Trees that were ſo thick as the Small of a Man's Leg. And whereas his Neighbours Trees did blow for moſt Years, yet the Fruit fell off at half their Growth, or ſooner: Tho' he had in that Time gather'd five or ſix Buſhels from his two Trees, and tho' his Neighbours Trees were near twenty in Number, he had never gather'd to the Quantity of a Peck from them.

This *yellow Pear Quince*, he ſays, will make a noble Figure on an *Eaſt* or *Weſt* Wall, being a Tree that is capable of being laid tolerably handſome; and the Fruit will be much larger than if on Standards. But it ought not to be prun'd as *Pears* are; but the Wood of the laſt Year is to be laid in between the Lines, being only tipp'd at the Ends, and all the Knots which project or come forward, being taken off.

5. QUINCUNX ORDER.

TREES planted in *Quincunx Order*, are ſuch as are planted as follows:



R A

1. RACEMIFEROUS.

RACEMIFEROUS, ſignifies Bearing in Cluſters.

2. RADIATE.

RADIATE FLOWERS, are ſuch as have their Leaves diſpos'd in the Form of Rays.

3 *To* RADICATE.

TO *radicate*, ſignifies to take Root.

4. RADICLE.

RADICLE, denotes that Part of the Seed of a Plant, which upon its Vegetation becomes its Root. This is that which in making *Malt* ſhoots forth, and is call'd the *Come* or *Comb.*

5. RADISHES.

To procure the Seed.] RADISHES are a good Garden Root, that are multiply'd by Seed, which grows in little Cods, thickiſh, round, and of a *Cinnamon* Colour. Thoſe *Radiſhes*, which are the beſt to ſave the Seed from, are thoſe that produce but few Leaves and a *red* Root. The Stocks that *run to Seed ſhoot* out their Branches very high, ſo that it will be proper to pluck them off to a reaſonable Height, that the firſt Stocks may be the better nouriſhed. The Seed ripens, and is fit to be gathered at the latter End of *July*; when you muſt cut down the Stems, and lay them to dry ſome Days in the Sun; and when they are dry enough, beat out the Seeds.

Way of Propagation, &c.] To have them early, they are uſually ſown on a Hot-bed, with a ſufficient Thickneſs of good, rich, light Mould, that they may have Depth enough to root in, before they reach the Dung. And that they may grow large and clean, Mr. *Mortimer* adviſes, to make Holes a Finger deep, at about three Inches diſtance one from another, and to put a good Seed or two into each Hole; then to cover them but a little with Earth, leaving the reſt of the Hole open; by which Means they will grow to the Height of the Hole before they ſpread their Leaves, and ſo will produce a long, ſtrait, tranſparent Root; and ſome of them may be had for Eating in the Months of *February*, *March* and *April.*

Soil, &c.] Mr. *Bradley* ſays, They chiefly covet a *ſandy* Soil, or other *light* Ground, well wrought with the Spade: And may be ſown in ſuch Land, any Time between the Months of *February* and *September*, always obſerving this Rule, that the hotter the Seaſon is, the Ground you ſow them in be the more in the Shade.

Mr. *Mortimer* ſays, That in Order to be ſupply'd with them all the other Months, they may be ſown all the Year, among moſt other Seeds, they being of ſo quick Growth, that they will be fit to be drawn before they can do any Harm to other Plants.

Mr. *Bradley* ſays, He has ſown ſome Seeds of the *Spaniſh Radiſh*, in *Auguſt*, that have been fit to draw juſt at the Beginning of *Winter*, and have laſted good 'till the *February* following. And that in Order to have a Crop to ſucceed theſe, it is cuſtomary to ſow ſome at *Michaelmaſs*, that ſo they may be above Ground in their Seed-Leaf only before *Winter*; and, if they have the Shelter of a warm Wall, will be in Seaſon about *March*.

The bigger Roots, that are accounted the beſt, are ſuch as are tranſparent, eat ſhort and quick, but not too biting nor ſtringy. They require good Watering in dry Weather.

In Order to have *Radiſhes* early, that is, towards *Chriſtmaſs* or *Candlemaſs*, Monſ. *Quintiney* directs to ſow them in Hot-beds about the Middle of *November*.

The Manner he directs, for Sowing *Radiſhes*, is to beat down the Superficies of the Mould with a Board, to keep it from rolling into the Holes that are made to ſow the *Radiſhes* in; then to mark out with a *whited* Line croſs and croſs the Bed at four Inches Diſtance; and then with a round planting-Stick an Inch thick, to make the Holes at the Corner of each Square, and to put no more than three *Radiſh-Seeds* in every Hole; and if any more *Seeds* ſhould chance to fall in, to pull up all that ſhall come up above the Number of three.

If there be more than three *Radiſhes* in a Hole, they will be apt to have a great many Leaves, and but little Roots.

And if in *February* or *March*, *Lettuces* be ſown between the *Radiſhes*, the Holes ſhould be made at eight Inches Diſtance; and the *Lettuces* will be ready to gather before the *Radiſhes*.

If it ſhould freeze very hard, it will be proper to cover the Beds with long Litter for five or ſix Days; and beſides that, Straw-Skreens or Coverings ſupported upon traverſe Frames or Cradles made of Stakes, or other Poles of Wood, may be alſo made Uſe of to defend them from the Rigour of the *Winter*; being plac'd near the Superficies of the Mould, and the Sides cloſe ſtopp'd up: And if the Froſt ſhould grow very ſevere, new Dung may be laid over the Straw-Skreens But if it be moderate, there will be no Occaſion for it.

Radiſhes being ſown after this Manner, he ſays, will come up in five or ſix Days Time. And if the Holes ſhould not have ſome Air, they would be ſmother'd and grow dwindling, in piercing through the ſmall Straw.

Meſſ. *London*, *&c.* ſays *Radiſhes* are extremely ſenſible of the exceſſive Heats in *Summer*-Time, and thoſe make them grow biting and ſtringy, and ſometimes very hard; and therefore in that Seaſon they ſhould be ſown in looſe, mellow Ground, where they may have but little Sun; and therefore he adviſes, to make Beds along the *Northern*-Walls, fill'd with Mould at leaſt a Foot and half deep, and to ſow the *Radiſhes* in them, and water them well: But in *Spring* and *Autumn* they will take well enough in open Ground, and in the open Air.

6. HORSE-RADISH.

THE *Horſe-Radiſhes* are increas'd by Plants, or by Pieces of the Root planted out. Mr. *Mortimer* adviſes, That if you dig up any of the Roots for Uſe, to cut the Root off, leaving about an Inch in Length joining to the Leaves, and to cut the Leaves ſhorter in Proportion; and having done this, to plant them again; and if the Weather be dry, to water them, and they will grow and increaſe.

Mr. *Bradley* ſays, He has known ſome Gardeners plant the Roots of *Horſe-Radiſh* in a Piece of Ground three or four Inches deep, and after having let it ſtand for three Years, have taken it up for Market. But a Friend of his made Uſe of a quicker and better Way, which is as follows: To dig a Trench about three or four Foot wide, and about a Foot and half deep, in a Soil more inclin'd to Sand than Clay; and about *Michaelmaſs* having cut ſome Roots in Pieces, of about three Inches long, to ſow them in the Bottom of the Trench, and then to cover them with the Earth that was taken out of it; and the *Spring* following they will have ſhot above Ground five or ſix Heads from each Piece of Root, and they will have been well-grown, ſtrong, ſtrait, without Knots, and fit to be taken up for Uſe, the *Michaelmaſs* following.

Mr. *Mortimer* ſpeaks of the *black Radiſh*; but this, he ſays, is ſo mean a Root, as not to find a Place in a good Garden. And he adds, That thoſe *Radiſhes* are beſt that grow on brackiſh Lands, and are watered with brackiſh Water.

7. RAIN.

RAIN is generally accounted to be crude Vapours of the Earth, but more eſpecially of the Sea, drawn up from thence by the attractive Power of the Sun, or carried thitherward by Pulſion, and wafted by the Winds into the *aerial Region*; by which Sublimation and Rarefaction, and the virtual Qualities of the Sun and Air, are formed into Clouds. The Crudities are diſpelled, and theſe Clouds ſuſpend and hang in the Air; and though it may be thought impoſſible that they ſhould be ſo ſuſpended in the Air, by Reaſon of their great Weight and Preſſure, yet it will not ſeem ſo if it be conſidered.

When theſe Vapours are thus drawn up to any conſiderable Height, the Strength of the Air, which is underneath them, which ſtill grows greater, and by its Motion undulating this Way and that Way, they riſe gradually thro' the Air.

This is demonſtrable by Paper Kites, which after they are raiſed to about ſixty Foot high, do riſe eaſier, and with greater Swiftneſs; and the higher ſtill the better and ſtronger they fly. Theſe Clouds being thus arrived into the upper *Region* of the *Air*, they are ſoon aggregated and condenſed into Bodies and Clouds. And tho' they are blown here and there, they are ſtill ſuſpended, 'till they are releaſed from their Impriſonment by the genial Diſpoſition of the Sun, or by the natural Warmth, Humidity and Rarefaction of the *Air*.

In *Rain* there are two diſtinct *Properties* or *Species*, the one which ſerves for the *Diſſolution* of the *Salts* of the *Earth*, and the other is a *terreſtrial Matter*, which it meets with in its *Sublimation*, which may with ſome Propriety be called either *Salt* or *Nitre*; and both theſe are uſeful in the Buſineſs of *Vegetation*.

Rain is operative in diſſolving the *Salts* that are in the Earth; and alſo cools and bathes the Cortex or Skin, of all Vegetables; and, by a Sort of Relaxation, cauſes the Sap to paſs up more freely, and by that Means the Tree to grow and ſhoot the better.

Theſe foggy humid Vapours, *ariſing* out of the Ground, &c. *of which Rain* is formed, would *inevitably* ſtagnate and poiſon the whole Face of the Earth; were they not ſublimated by the Air, and drawn up by the Aſſiſtance of the Sun into the upper *Regions*; but being there rarefied, they are made of ſecond uſe in Vegetation.

Mr. *Le Clerc* ſays *Rain* differs from *Dew* only in this, that *Dew* falls at ſome particular Times, and in very ſmall Drops ſo as to be ſeen when it is down, but ſcarce perceivable while it is falling, whereas *Rain* is groſſer and falls at any Time.

It is not to be doubted, but that *Rain* drops out of the Clouds, becauſe we don't find it *rain*, but where Clouds are to be ſeen; and by how much the fairer the Weather is the ſeldomer it *rains*.

As to how the Clouds become condenſed and diſcharge themſelves upon the Earth in *Rains*, this may be attributed ſingly or jointly, to ſeveral Cauſes which produce this Effect.

The Coldneſs of the Air may cauſe the Particles of the Clouds to loſe their Motion, and become leſs able to reſiſt the Gravity of the incumbent Air, and conſequently to yield to its Preſſure and fall to the Ground.

2. The Wind may collect the Vapours in ſuch Abundance, as firſt to form very thick Clouds, and then to ſqueeze thoſe Clouds together, till the watery Particles make Drops too big to hang any longer in the Air.

He obſerves that all Winds do not produce *Rains*, but only ſuch as collect a great Quantity of Vapours. Thus in *Holland* *Weſt* Winds are *rainy*, becauſe they come from the Ocean, and blow up the Vapours; *Eaſt* Winds blow clear becauſe they come over large Tracts of Land. *North* Winds are *rainy* becauſe they come from the *North Sea*, but not ſo *rainy* as the *Weſt*; becauſe the cold *North* does not yield ſuch a Quantity of Vapours, as the kinder Climate of the *Britanick* Ocean: *South* Winds bring *Rain* too; for that they conſiſting of Vapours, raiſed by the Heat of the Sun, in a hot Quarter, and ſo being elevated above others in the Air, ſeem to lie upon our Clouds and preſs them down towards the Earth.

But notwithſtanding, there are many Exceptions in thoſe Caſes according to the Variety of Cauſes conſpiring to the ſame Effect, many of which we know nothing of.

Again, *Rain* may be produced after this Manner; If the Vapours riſe in ſo great Abundance as to reach and mingle with the Clouds above them, then they cauſe *Rain* in very large Drops; and this may happen in ſtill, ſultry Weather, for then the Clouds which are over our Heads, have no ſenſible Motion, and in the mean time the Heat fills the Air with Vapours, which joining with the Clouds, and ſo being ſtopped in their Progreſs, open a Paſſage for the Stores in the Clouds to deſcend upon the Earth.

Sometimes alſo the warm Wind thaws the Clouds into Drops, as we ſee Snow diſſolved by Heat; now by how much the thicker and ſooner any ſuch Cloud was gathered, the larger are the Drops that come from it, becauſe a greater Store of Vapours was condenſed there. From thence it is, that in *Summer* time we have ſudden Showers of *Rain* in very large Drops.

It ought alſo to be remembred, that in thoſe Countries which lie between the *Tropicks*, where they have the Sun vertical, the *Rain* pours down for ſeveral Weeks together, more like Pails full than Drops. And it is very probable that this is, becauſe at that Time the Sun draws up Abundance of Vapours, and rarefies them extremely, ſo that they are elevated as high as poſſible, and then are precipitated at once, being too copious and heavy to hang any longer in the Air; and beſides there may ſometimes be a Cocurrence of neighbouring Vapours, which will be ready to crowd into that Part of the Air, which is moſt rarefied by the Heat of the Sun meeting with the Vapours, which are raiſed in that Place, produce very great Clouds and *Rain*.

If any ask how the Drops of falling Water come to be round, as in *Rain*. It is anſwered, that this does not happen by any Diſpoſition peculiar to Water, but becauſe the Drops are equally preſſed by the Air on every Side, and thereby forced into a round Figure; the Reſiſtance of the Particles as well as the Preſſure of the Air being equal every

Way: But others give other Reaſons for it.

8. RAINBOW.

THE *Rainbow* is made by the Sun ſhining upon the Drops of *Rain*.

The following Properties are aſcribed to the *Rainbow*.

1. That it never appears but in a Place oppoſite to the Sun, ſo that when we look directly at it, the Sun is always behind us.

2. That when the *Rainbow* appears it always *rains* ſomewhere.

3. That the conſtant order of the Colours is, that the outmoſt is *red* or *Saffron* Colour, the next is *yellow*, the third is *green*, the fourth and inmoſt is *Violet* or *blue*; but theſe Colours are not always equally bright.

4. Sometimes two *Rainbows* appear together, one of which is higher and larger than the other, and ſhews the aforeſaid Colours but in an inverted Order.

4. The *Rainbow* is always exactly round, but does not always appear equally intire, the upper or lower Parts being very often wanting.

6. Its apparent Breadth is always the ſame.

7. That thoſe that ſtand upon plain low Ground never ſee above half its Circle, and oftentimes not ſo much.

8. The higher the Sun is above the Horizon, the leſſer of *the Circle* is ſeen; and if there be *no Cloud* to hinder, the low- *the more* of it.

9. That never any *Rainbow* appears when the Sun is above forty one Degrees forty ſix Minutes high.

9. RAMIFICATION.

A Collection of ſmall Branches iſſuing out of large ones..

10. RAMPIONS.

RAMPIONS are Plants, the tender Roots of which are eaten in the Spring like thoſe of *Radiſhes*, but are much more nouriſhing.

11. RANUNCULUS.

THE *Ranunculus* is thus deſcribed by Monſ. *Liger*.

Deſcription.] This Plant ſhoots forth Leaves from the Root, cut in very deep and little Stalks, at the Ends of which grow Flowers, in the Form of Roſes, which are generally ſupported by Cups, which have alſo many Leaves; out of the Middle of which grows a Chive, which in Proceſs of time becomes a Fruit, roundiſh, containing ſeveral Seeds, which are oftentimes expoſed to View.

He adds, that the *Ranunculus* is one of the moſt eſteemed among the Flowers that adorn a Garden; and if it were odoriferous, it would be a Maſter-piece in Nature.

Mr. *Bradley* ſays, for its beautiful Flower it is deſirable next to the *Tulip*, and that there are ſo many Varieties of it brought from *Turkey* every Year, that it would be tedious to mention their Names, and are better to be known by View than by Deſcription; and therefore he mentions only ſome few Sorts of them, *viz.* that they bear their Bloſſoms in *April* and *May*, upon Stalks about ſix or eight Inches high; the *double flowering Kinds* are crowded with *Petals*, or flower Leaves, after the Manner of the *Province Roſe*, and that ſome of them are as large; the Colours of them, that he has ſeen, are deep *ſcarlets* veined with *green* and *gold* Colours, *yellow* tipp'd with *red*, *white* ſpotted with *red*, *Orange* Colours, plain *white*, *yellow* with *black*, and one Sort of a *Peach Bloom* Colour.

Mr. *Mortimer* ſays of them, that *Ranunculus*'s excel all Flowers in the Richneſs of their Colour, nor are any Flowers ſo fine and fair as the larger Sorts of them; of which there are a great Variety which he enumerates, the double *red Ranunculus* of *Aſia*, the *ſtrip'd* ones, the double *yellow-Crow-Foot*, or *Aſian Ranunculus*, the *Cloth of Silver-Crow-Foot*, and the double *white-Crow-Foot* of *Candia*, the *Monſter of Rome*, very rich and double, the ſtrip'd *Monſter*, the *Purion of Rome*, the *Ranunculus of Aleppo*, the *Ferius*, the *Ferius Trache* and the *Morvilla*.

Of the ſingle ones he recommends the following as the beſt, the *golden Ranunculus* ſtrip'd with *ſcarlet*, the *Roſa Frize*, the *Beſanon*, the *Didomian*, the *African*, the *Melidore*, the *Panniſan*, the *Roman*, &c.

The ſingle Kinds, Mr. *Bradley* ſays, often grow taller than the others, and are commonly variegated with pleaſant Colours, and produce the *Seeds* by which you may propagate both the ſingle and double Kinds.

Mr. *Liger* ſays, that a *Ranunculus* whoſe *ground* Colour is *white*, with *red* Streaks well diſtinguiſhed is accounted very fine, and thoſe that are *yellow* ſpeckled with *red*, and thoſe that are of a *Roſe* Colour without, and *white* within, are very much valued. That thoſe which are the leaſt eſteemed are the *Peonies*, whoſe Flower is quite *red*; the *white*, the *gold* Colour, the pale *yellow*, the *Citron* Colour and *browniſh red*, are always to be prefer'd before them.

Soil.] Mr. *Mortimer* ſays, they are to be planted in a very rich, dry Earth, well dung'd; others ſay, in a fat and moiſt Earth mix'd with Garden Mould, and ſome commend the mixing of human Dung with the *Soil* you ſet them in. Mr. *Bradley* ſays, the *Soil* they moſt delight in is rotted Leaves, or ſuch *Soil* as may be taken from the Surface of the Earth in Woods, or Groves of long ſtanding, and that Tanners Bark, or the Bottom of a Wood Pile well ſifted and mix'd with one third Part of natural *Soil*, are very proper for them. Mr. *Liger* ſays, the *yellow Ranunculus* with Flowers like *Rue*, thrive better in Pots than open Ground, if you give them only a compound of Kitchen Garden Earth, which is very ſubſtantial and impregnated with a great many Salts.

Way of multiplying.] Mr *Bradley* ſays, theſe Plants are increaſed by *Offsets*, found about the Roots when taken up, and may likewiſe be propagated from *Seeds* ſaved from the ſingle Kinds, and ſome doubles; but as they rarely ripen in *England*, we have hitherto been beholden to the *French* for them; they are ſome what tender, and require ſome Shelter in the Winter; eſpecially if they have begun to ſpring before the Froſts. The *ſeedling* Plants come up the Spring after they are ſown, and bloſſom the ſecond Year.

Culture.] Mr. *Mortimer* ſays, when they come up in *March* or *April*, they ought to be frequently watered; and that their Leaves being once nipt by the Froſt, often kill them to the Roots; but whereas you may perceive it by their *brown* Colour; if you cover them often it will recover them.

He adds, they are to be taken up about *Midſummer*, and kept dry in Papers or Boxes till they are ſet again, or they ſhould be taken up ſooner or later, according as the Weather is dry or wet, and when they are taken up put into a dry Place, that they may be throughly dry before they are put into Boxes, that they may not grow mouldy; for that will cauſe them to rot when you replant them.

Mr. *Bradley* ſays, they ſhould *be taken* out of the Ground *when they* are out of flower, and the Stalks and Leaves are decayed; and having well dry'd them in the Sun, muſt be preſerved in dry Sand till the latter End of *September*, which if the Ground be not over wet, is the beſt Time for replanting them; and to this Monſ. *Liger* agrees.

Mr. *Mortimer* recommends the ſetting of them in *December*, for that he ſays, they will come up too ſoon if ſet earlier, and are apt to be deſtroyed by the Froſts, unleſs they be daily covered and carefully aired; and then in ſuch caſe you may plant them in *October*, which ſhould be done about two Inches deep in the Earth, and Mr. *Liger* ſays, four Inches diſtant one from the other, in Holes made by a Dibble, round at the Bottom, not pointed.

He alſo adviſes the laying their Fangs in Water, for twenty four Hours, where by imbibing the Moiſture, they will be better diſpoſed to grow when planted.

He ſays, the *Ranunculus*'s muſt always be planted apart by themſelves; becauſe they are of ſo particular a Nature, that they will not thrive near any other Flower.

Mr. *Bradley* gives us the following Account, of what he calls one of the moſt ſurprizing Productions of Nature that he had met with:

That having heard of the Excellencies of ſome of theſe Flowers, from Perſons who were very good Judges, and who had ſeen them in their Bloom, view a Collection of Seedling-*Ranunculus's*, which had been rais'd by Mr. *Potter*, a Gardener at *Mitcham* in *Surrey*: And that he never had in his whole Life met with any that were ſo agreeable to him in the Beauty of their Colours, the Variety of their Make, or the Largeneſs of their Bloſſom: And tho' there were many Hundred diſtinct Sorts of them, he could not ſay which of them pleas'd him beſt.

That there were many of them which had all the Properties of a good Flower; and the reſt were very different from what ever had been ſeen in *England*, and indeed ſuch as he never expected to ſee.

As for their Colours, they were from the cleareſt *white* to the darkeſt *purple*, excepting only the *azure blue*, to carry them through all the Colours to the deepeſt *black*: Some of them were entirely of one Colour. The *Petals* or Flower-Leaves of others ſtrip'd with various Colours, which as the *Carnations* call'd *Flakes* do, mark quite through. Some again pounced or powder'd with the gayeſt Colours, like the *Pickatees*. Others were ting'd on the Edges with Varieties of Colours: And the Centers of ſome of them ſtained with Colours directly oppoſite to thoſe of their other Leaves.

As to the Figure or Make of theſe Flowers, ſome of them were in Shape like the *African-Marygolds*, and others like the *French-Marygolds*; and alſo reſembled them in their Colours.

Some of them had the Shape of thoſe *Ranunculus's* which are call'd the *Turks Turbants*, and thoſe Sorts that are uſually cultivated in Gardens, extremely double, and alſo blow very tall: Some of them flower like double *Anemonies*; and others of them again like the fineſt double *Poppies*, and bear Bloſſoms as large as *Peonies*. Some had the Forms of *Roſes* of ſeveral Sorts, their Flower-Leaves being in that Shape, and diſpos'd in the ſame Manner. Some of them had a Star-like Figure; and others turn'd their Leaves back, and form'd the Figure of a Globe: And ſome of them were of ſuch odd Figures, that he is at a Loſs what to compare them to.

The moſt of theſe Flowers blow'd near two Foot high, and branch'd out plentifully from the Root, ſo that it is no rare thing for one Root to produce near forty Flower Buds, into Bloſſom with good Strength. They grew and brought their Bloſſoms much after the ſame Manner as the great *yellow Ranunculus's* of the Meadows, which hold in Flower near three Months, and are very hardy.

Many of theſe Flowers were Semi-doubles, which produce Seed that ripens very well, and ſprings out of the Ground with a little Trouble. The Seed-bearing Veſſels of ſome of them were extraordinary, being of a bright *yellow* Colour. And it would be endleſs to mention every remarkable Difference in them.

He adds, That tho' the Original of theſe Flowers came from *Perſia*, yet he finds their Off-ſprings are very hardy, and reſiſt the Froſts better than the old Sorts of *Ranunculus*'s will; and if the Ground be but rightly prepar'd for them, will flouriſh any where.

The Account he gives of the Soil of Mr. *Potters*'s Garden, is, That it is a pretty light, *natural* Soil, with a *gravelly* Bottom: But as to the Flower-beds, they are made with the following Compoſition, *viz.* Some of the Surface of the natural Earth, rotted Leaves, rotted Horſe-Dung and Cow-Dung; which having lain together in a Heap for ſome Time, is afterwards ſifted very fine.

The Beds being prepar'd, he plants the Roots about *Michaelmaſs*, burying the Bud of the Root about two Inches and a half deep. When they begin to appear above Ground, he ſhelters them with Mats in froſty Weather; and as they begin to riſe, the Bed may be cover'd about half an Inch thick with a freſh Coat of the Mixture before mention'd; and this will greatly ſtrengthen the Roots, and in an eſpecial Manner aſſiſt the new Roots or Offsets.

But this muſt be done with a great deal of Caution, for Fear of hurting either the Leaves or the Stalks: For every Stalk that is either bruiſed or broken, prejudices the Root till the Plants come to flower; and even then too, if the Bloſſoms be cropp'd quently.

The Reaſon for thus Coating the Beds with freſh Earth, is, that the Roots of the *Ranunculus*'s that are put into the Ground, always produce Offsets near an Inch about them, and as they grow, the Mother-Roots decay. And theſe very new Roots contribute to the Bloſſoming of the Plants; becauſe they join with the Flower-Stalks, and help to nouriſh them, as well as receive Nouriſhment from them. And upon this Account, the freſh Earth is aſſiſting both to them, and to the Flowers.

Mr. *Bradley*, giving this Account to *J. S.* Eſq; takes Occaſion to tell him, That as his Soil is ſtrong and binding; he, upon a Soil that was ſo ſtiff that it was judg'd to be fit for nothing but Bricks, had very good Succeſs in the Culture of *Ranunculus*'s. Tho' many are of Opinion, that a Clay Country will not blow *Ranunculus*'s; nay that they will not live in it, altho' the Beds ſhould be prepar'd with a proper Soil.

He adds, That if on ſuch a Soil the Beds were prepar'd according to the common Method, we might expect, that the Roots would be deſtroy'd, or elſe would produce but very weak Flowers.

The uſual Way he ſpeaks of, of making *Ranunculus*-Beds, is, by digging Trenches in this Clay-Ground, and filling them with good, light ſifted Mould: But this Method, he finds by Experience, is not good; becauſe Trenches dug in Clay-Ground, are like Baſons to receive all the Water that falls; ſo that the fine Earth that theſe Trenches are fill'd with, becomes a meer Bog; which corrupts and chills the Roots, altho' they be planted above where the Surface of the Clay reaches. And an unwholſome Vapour will ariſe from the ſtanding Water at the Bottom, and the Wet below keeps the Earth at the upper Part of the Bed ſo continually moiſt, that *Ranunculus*'s cannot endure it: Nor will the beſt Drains that can be made from theſe Sort of Beds cut in Clay, ſufficiently drain away the Wet they receive, altho' the Ground lies upon a hanging Level.

Therefore, where the Ground is ſuch, he adviſes, to take off the ſuperficial Soil that covers it, to the Depth of three or four Inches, without entering the Clay at all; and then to lay on a little Coat of Sea-Coal Aſhes, or Lime Rubbiſh; and to raiſe a Bed nine or twelve Inches thick upon this Coat, with ſuch Earth or Mixture as has been mention'd above; or, one third rotted Leaves, and one third Melon-Earth, all well mixt and ſifted.

He ſays, He has alſo had very good Succeſs with *Ranunculus*'s, in Mould, being the Parings of the Surface of large Woods, which was chiefly rotted Wood and Leaves, which he ſuppos'd to have lain there many Years. He choſe that Soil, becauſe he had obſerv'd the common *Ranunculus*, call'd *Pikewort*, to grow and proſper wonderfully there.

And a certain Gardener at *Acton*, who made Beds for *Ranunculus*'s, of Tanners Bark, found they grew and proſpered ſo well in it, that he had ſeldom leſs than the Increaſe of eight or ten Roots for every ſingle one that he put into the Ground.

Mr. *Bradley* alſo obſerves, That the Paths or Alleys which are between theſe *Ranunculus*-Beds, ſhould be fill'd up, either with Sea-Coal Aſhes, Brick or Lime Rubbiſh, or Sea-Sand, to draw off the over-abounding Moiſture from the Beds, and keep the Beds as dry as may be. But if none of theſe can well be had, Graſs-Turf will help to keep them dry in the *Winter*, which *Ranunculus*'s do require.

He ſays, The moſt favourable Expoſure for a *Ranunculus*, is that which has moſt Sun, it being a ſtrong Flower, has Need of a great deal of Heat for gaining a fine lively Colour. And that if you would make it laſt long, you need only to cover it during the great Heat, with ſome Linnen-Cloth waxed and ſupported with Stakes.

Mr. *Mortimer* adviſes, if you would keep them long in Flower, to cover them from the Heat of the Sun only; and when they have almoſt done flowering, to uncover them, that they may dry in the open Air.

As to the *yellow Ranunculus*'s, with Flowers like *Rue*, Monſ. *Liger* ſays, you are to diſplant them in the Month of *September*; and after you have ſever'd the little Fangs from them, to plant them out of Hand. If it planted in Pots, he adviſes, as ſoon as its Leaves begin to wither, to carry the Pots to ſome cloſe Place, to ſecure the Plants from the Rains of *Auguſt*, for fear they ſhould ſhoot forth new Roots; or, which is better, having diſplanted it as ſoon as the Leaves begin to fall, to plant them immediately in ſome ſhady Place where the Sun never comes, that the *Summer*-Rains ſinking gently to their Roots, may diſpoſe them for fine Productions.

The *white double Ranunculus* requires the ſame Culture, unleſs that when its Leaves are fallen, you muſt ſet it in the Shade, and not diſplant it till the Beginning of *Autumn*, when you are to take off its Fangs from it, and tranſplant it immediately; or elſe it will be apt to change, and not produce ſo fair Flowers.

12. *To* Rarefie.

To *Rarefie* ſignifies to make thin.

13. Rasberries.

Various Sorts.] Mr. *Bradley* mentions but two Sorts of them, the *Red* and the *white:* The *white* is the greater Rarety, but hardly of ſo good a Flavour. Mr. *Mortimer* reckons three Sorts, the *common wild* one, the large *red Garden-Rasberry*, which, he ſays, is one of the pleaſanteſt Fruits, and the *white*, little inferiour to the *red*.

Soil and Propagation.] They delight in the ſame Soil that *Strawberries* do; and are propagated by *Slips* that ſprout out of their Stocks every Year, and are taken from the Roots in *March*, (which Mr. *Bradley* accounts the beſt Seaſon;) and are fit to replant the next *Spring* after. The Fruit begins to ripen about the Beginning of *July*. Mr. *Mortimer* directs, to leave the Diſtance of two Foot between Plant and Plant, whether planted in Beds or Borders.

Mr. *Bradley* ſays, ſome Gardeners plant ſingle Lines of them, at about a Foot Diſtance between Plant and Plant: And that others plant them in Beds three Foot wide, three Rows in each Bed; both which Ways ſucceed very well.

That after they have been planted, they will the firſt *Summer* fling up ſome Suckers from the Roots, and put ſome few Shoots from the old Stems, that were left ſtanding when they were planted; but no Quantity of Fruit can be expected from them the firſt Year, by Reaſon thoſe Stems are never left above a Foot long, when they are planted out; nor indeed are any vigorous Shoots to be expected from them till the ſecond Year; ſo that it will be the third *Summer* after their Planting, before a full Crop can be expected; becauſe the Fruit is always to be found upon the Shoots of the preceeding Year.

Mr. *Mortimer* ſays, That during the *Summer*-Time, they ſhoot out many well-rooted Suckers, ſome of which may be taken away to make new Plantations, and to renew old ones;

for that they are dry as ſoon as their Fruit is gathered; and therefore he adviſes, not to cut the Tops to a round Buſh, becauſe this makes them grow ſo thick, that they will neither bear nor ripen their Fruits ſo well as if they grew taller and thinner.

Culture.] Mr. *Bradley* ſays, The chief Culture neceſſary, is to keep the Plants clear of Weeds in the *Spring*, and in *March* to prune the Tops of the ſtrongeſt Shoots of the laſt Year, leaving them about three Foot high.

Mr. *Mortimer* directs, *Firſt*, in *March* to ſhorten all their new Shoots, which grow round about the Stock, and which ought only to be the thickeſt and handſomeſt. *Secondly*, To pluck away all the dead old ones, and alſo the ſmall ones. And *Thirdly*, to cut them juſt above the bearing Part, to let the Sun into them, a Fortnight or three Weeks before they are ripe; and doing theſe Things will make them bear the better.

He adds, That they are apt to be peſter'd with *green Lice*, that are pernicious to them; to free them from which, he adviſes, to ſprinkle them with Water in which *Lime* has been diſſolved: And that they ought to be removed once in eight Years.

Mr. *Bradley* ſays, If *Raſberries* have their Bloſſoms pull'd off in the *Spring*, they will bring Fruit in *Autumn* to perfect Ripeneſs.

14. WATER-RATS.

WATER-RATS do a great deal of Miſchief to the Roots of Trees. One Way to deſtroy them, is to procure a good Number of Crackers, ſuch as Boys uſe, and to place them at four, five, or ſix Inches Diſtance, upon a Yard of Quick-Match, ſuch as is us'd by Gunners, *&c.* When as many of theſe Matches are thus dreſt, as there are Water-Rat Holes, convey the Ends of the Matches with the Crackers on them, as far into the Holes as you can, with a Willow-Twig, leaving only a little of the Match out of the Hole. Then having Dogs ready, place three or four Men at convenient Diſtances one from another, with Portfires, which are alſo to be had of Gunners, and let them fire their Quick-Matches at different Times, as they ſhall ſee Occaſion; and every Quick-Match will ſet Fire to the Crackers, and they upon their firſt going off, will drive the *Rats* out of their Cells, and ſo the Dogs may catch them; but if they miſs them, and take to ſome other Hole; then the Man that is plac'd next, ſets Fire to that Quick-Match, and ſo the Crackers will ſend them out again; and ſo they will be caught by the Dogs, being continually hurried about in this Confuſion, which will be very diverting Sport: And if any be left alive, they will never return to the ſame Place.

15, RECUMBENT.

RECUMBENT Leaves, are ſuch as are in a Lying Poſture.

16. T

16. *To* REFRIGERATE.

TO *Refrigerate* ſignifies to *Cool.*

17. *To* REGERMINATE.

TO *Regerminate* is to *ſpring* or *bud* again.

18. RHUBARB.

MR. *Mortimer* ſays, *Rhubarb* is of ſeveral Sorts, which are all rais'd by *Seed*, or by parting the *Tops*.

19. RHUS, RHOE, BUCKS-HORN TREE *of* VIRGINIA: *See* INDIAN SUMACH.

20. REPONCES.

REPONCES are *wild Radiſhes*, a ſmall Sort, that are eaten in Sallads, which grow in the Fields; and may be propagated by *Seed.*

21. RESINIFEROUS.

RESINIFEROUS ſignifies bearing or producing *Roſin.*

22. RICCOLUS's: *See* AURICULA's.

23. *A Method of* RIPENING *Fruit.*

MR. *Bradley* having taken Notice, that ſome Fruits *ow and ripen about Paris*, bet- *than they do in England*, tho' their *Winters* are much more ſevere than ours are in *England*, even ſo pinching cold as to deſtroy their *Vines*, *Olives*, and *Pomegranates*; yet their *Summers* are ſo violent hot, that their Fruits ripen; which Heat we want to bring ſome Fruits to Perfection.

Therefore he offers ſome Conjectures to help this Deficiency:

1. As to the Manner of the Growth of Fruit. He concludes, from his own Obſervations, That Fruits all follow the ſame Methods of Growing and Ripening. That when Fruit ſets, it begins to grow immediately; and ſo proceeds, till it comes to a certain Period: Then it makes a Stand for a Time, at which Time it may be obſerv'd, that it is not half ſo large as it ſhould be when it is ripe. And he gives it as his Opinion, That at the Time when the Fruit ſtops in its Growth, the whole Tree is at reſt in its Vegetation. As a Confirmation of this, he adds, That there are many Inſtances of Trees, which have been tranſplanted at ſuch a Time, and the Fruit which was upon them has ripen'd; and the Trees have produc'd Fruit in abundance the next Year.

He ſays, he has had ſo many Proofs of this, that he would as ſoon take up a Tree for his own Uſe at that Time, as at any other.

2. Some Time after this Stop, the Fruit begins to grow larger; and then, if there be due Heat for it, haſtens to Maturity. The ſudden Motion may probably

depend upon two Things; *Firſt*, that a freſh Fund of Sap collected from the Earth by new-made Roots, has only the Fruit to feed for a Time, before the Shooters or young Branches can receive any of it; and the Body of the Fruit being at that Time ſpongy, is ſtill better prepar'd to receive it; and ſo is the Cauſe of the ſudden Swelling of the Fruit: Or perhaps, the Fermentation may be caus'd by the raw Juices coming directly from the Earth, and mixing with thoſe which have had a longer Time to filter through the fine Veſſels of the Tree; and from thence the ſudden Swelling of the Fruits may be caus'd: For Maturation or Ripeneſs in Fruit, is no more than a Tendency to Rottenneſs and Putrefaction: And all ſuch Bodies as ferment, naturally putrify when the Ferment is over. It may be probable, that the Fermenting of theſe Liquors in the Body of the Fruit makes it ſwell, there being Inſtances of Liquors which take up more Room when they ferment, than they did before.

Notwithſtanding, it is found to be neceſſary, that theſe Juices ſhould be aſſiſted by the Sun or ſome other Heat, in Order to the due Ripening of the Fruit: For when the Heat of the Sun fails, after the Fruit is come to its full Growth, the Juices continue to be raw, and have not an agreeable Taſte nor Flavour: But when the Fruit has a due Share of Heat, the Ferment ceaſes; and then the Maturation begins, and ſugars its Juices, and cauſes that Richneſs of Flavour which renders it agreeable to the Palate.

It ſeems very reaſonable to conclude, That this Maturation of Fruit is a Degree of Putrefaction; becauſe by it they are rendred ſoft, and ſend out a ſtrong Odour, as it is found by Experience that moſt Bodies do, more or leſs grateful to the Senſes, as they differ more or leſs in Degrees of Putrefaction.

Therefore, in our Climate, where we have not Sun enough to ripen our Fruit, tho' it does bring it to its full Growth, it is to be aſſiſted by Fire, which heightens its Reliſh, and ſugars its Juices; as is found in baking and ſtewing of Fruit: Some of which are by theſe Means rendered more agreeable to the Palate than perhaps they would have been, if they had had the Benefit of the Sun. And this baking and ſtewing of Fruits, is acting upon them by an artificial Heat, much after the ſame Manner as the Sun would have acted upon them by its natural Heat.

Some of thoſe *Pears* which are moſt diſagreeable and harſh, are render'd very pleaſing to the Palate, by the violent Heat of Baking. Their Hardneſs becomes ſoft, their Juices which are ſour become ſugared, and their earthy Smell changes into an high Perfume.

As for *Peaches*, when the natural Heat they require to ripen them, is deficient, they are much aſſiſted this Way; for as long as they poſſeſs the two Sorts of Juices before-mention'd, which may be ſuppos'd to riſe in them at the two Seaſons of their Growth, they want nothing but Heat to make their Taſte better, and bring them to their proper Perfection : And in ſome Caſes the Heat of Fire renders Fruit more delicious than the hotteſt Sun would have done.

But for as much as the *Heat* which is commonly made Uſe of for this Purpoſe, is often raſh and ſudden, and in that differs from the *Heat* of the *Sun*, which operates on, and influences by ſlow Degrees: This may be the Reaſon that Fruits which are ripened by the Sun, and thoſe that are baked, do differ in their Taſtes.

But ſince every Year does not prove kind enough to bring every Sort of Fruit to a good Perfection, it may be proper to conſider how we may help the Imperfection, ſo as to bring that Fruit to a tolerable Goodneſs, which has not had a ſufficient Heat of the Sun to do it.

Mr. *Bradley* informs us, That he having gathered ſome *Winter*-Fruits, laid ſome of two or three Sorts of them upon the Pavement in his Stove or Conſervatory for Exotick Plants ; under which, a Fire was made every Night, while the Weather was froſty, and the Warmth of the Sun ſhut in every Day. The Fruit was the *Bon Chrêtien Pear*, the *L'Epine de Hyver*, and the *black Pear* of *Worceſter*. The Part of the Floor where theſe *Pears* were laid, had been ſpread with Sand to dry, and this Sand the *Pears* from bruiſing. Two Months after, he perceiv'd the *Pears* ſent out a very agreeable Odour ; and cutting one of the *Bon Chrêtiens*, it appear'd to his Palate as good as ever he had eat abroad, and had in it the Excellence of a *Buree du Roy*. This was ſome Surprize to him, to find a *Pear* to be ripen'd two Months before its Time, he having rarely found it to be ripe before the latter End of *January*, or in *February* ; and alſo as rich in its Flavour, and as melting as any he had ever taſted Abroad : Thereupon he try'd a ſecond and third, and found them all fit for eating. The Week after, the *L'Epine de Hyver* was ripe, and very good ; and the *black Pears* of *Worceſter* began to rot about *Chriſtmaſs* ; but one of them was well enough for eating.

That thereupon, conſidering how this might happen, and that Heat contributed to the Ripening Fruits, either by the Sun or Oven ; he examin'd, what different Sorts of Ripeneſs each of theſe did produce ; and thence he came to this Concluſion, That the conſtant Warmth of his Stove, by Means both of the Fire and the Sun, and the warm Air, which was continually circulating, caus'd theſe Fruits to ripen much ſooner than they did in other Places. And alſo having experienc'd, that Nature ripens Fruits by gentle Degrees, he conjectur'd, that the *Pears* had been brought to this natural Perfection, by a gentle progreſſive or continued Warmth : Whereas, if the Heat had been ſudden and violent, it would rather have bak'd than ripen'd them.

From the Conſiderations before-mention'd, he collects, That if we would artificially ripen late-coming Fruits, they ſhould be ſhelter'd from the *Autumn*-Froſts a little before they begin to fall; but not ſo, that the circum-ambient Air be entirely excluded from them; for if that be moderate, it will help to feed the Fruit: For, whereas great Cold and Froſts, do render Fruits tough and ſour, altho' they have been ſoft and ſweet before; ſo Heat ſoftens and ſweetens them.

He directs to gather Fruit dry, when it has hung long enough upon the Tree, then tie a Thread to the Stalk, and ſo take a *Florence* Flask, or ſome Glaſs of that Shape, which being cut through the Body, ſo that the two Parts may be ſet together again with Wood, or by ſome other Method, the Neck Part being a Cover to the lower Part, to put a large Fruit into it, ſo that it may hang by the Thread, and not touch any Part of the Glaſs.

The Fruit being fixed, and the Glaſs ſhut together, ſhould be ſet up to the Neck in a Buſhel of Bran and Water Mixed together in a large Tub or Pan, of the Shape of a Buſhel Meaſure, and he ſuppoſes the Fruit will ripen by the Heat of the Bran and Water; which will gently warm the Air, which comes in at the top of the Flask, and keeps a *conſtant* gentle Heat; for he knows of no Heat that is ſo conſtant as this, or that will be better for this Purpoſe.

Five Flasks may be ſet in a Buſhel of Bran, and it will keep its Heat for five or ſix Weeks.

Some Fruits may require twenty Days, ſome forty, and according to their different Natures. The Mouth of the Glaſſes are to be left open; for it is a warm circulating Air that ripens all Fruit.

To bring Fruits and Herbs to Ripeneſs in uncommon Seaſons.

In *England*, the Months of *November*, *December*, *January*, *February*, *March* and *April* are called dead Months, becauſe in ſeveral of thoſe Seaſons, Nature ſeems to be unactive among Vegetables, or does not of her own Accord, produce any Fruit to Perfection.

Tho' the Methods that have been made uſe of to bring to Ripeneſs ſome few Fruits out of their natural Seaſons, have been various, yet few of them have had the deſired Succeſs.

Mr. *Bradley* ſays, Mr. *Millet* near *North-End*, was the chief, if not the only Gardener in *England*, for bringing his Fruit to a good Ripeneſs and Perfection out of its natural Seaſon; ſo that he has in *February*, eaten *Duke Cherries* ſo ripe, that they were in a Manner *black*, and in his Opinion, as well taſted as any that were of the *Summers* Growth; this he effected by his judicious and juſt Management of them, in affording them their due Heat at proper Times, which not having been rightly underſtood by many, and the Fruit having been unnaturally forced with too great Violence, it cauſed it always to be inſipid.

He therefore having been adviſ'd by ſome Perſons of Quality to publiſh his Thoughts, as to what Means are to be uſed to produce good Fruits in uncommon Seaſons, preſcribes the Method following.

He directs to make a Paling of five Foot high, with Stakes to ſupport it, ſet at about two Yards Diſtance, and to nail whole deal Boards, of at leaſt an Inch thick, and four Yards long, from one Stake to another.

If the Deals were not an Inch thick, the Trees would be apt to be ſcorch'd, upon the firſt laying of the hot Dung, and if they ſhould be much thicker, the artificial Heat that is to be applied to the Back of them, at the Time that it begins to decline, would not have Power enough to warm them through, and then they will require to have the Dung refreſh'd the oftener.

Theſe Deal Boards muſt be well joined to one another, and plowed on the Edges, ſo that they may let in Lathes, that the Steam of the Dung, which muſt be laid at their Backs, may be kept from getting among the Plants, becauſe where the Steam ſhall come it will cauſe a Mildew

This Paling being ſet up, a Border may be marked out about four Foot wide, on the *South* ſide of it, and ſome Scantlings of Wood about four Inches thick, muſt be faſtened to the Ground in a ſtrait Line, on the outſide of the Border. Theſe are to reſt the Glaſs Lights upon, which Lights are to ſlope back to the Paling, to ſhelter the Fruit as their ſhall be Occaſion.

Bars about four Inches wide, cut out of whole Deal, muſt be placed between theſe Glaſs Lights, ſo that the Lights may reſt on them.

Theſe Bars are always to be kept fixed as in a hot Bed-Frame.

If you would not have the Glaſs Lights ſlope ſo much as they will by this Fall from the upright, then you may have a Line of whole Deals fixed on the Top of the Paling, to project their whole Breadth over the Trees, and made ſo that the Tops of the Glaſs Lights may fall in an Inch or two under them.

There muſt alſo be a Door ſhap'd to the Profile of the Frame, at each End of the Frame, that it may be opened at either of the Ends, according as the Wind blows.

The Fruit that he directs to plant in theſe Frames are the *Avant*, the *Albemarle*, the *Ann*, the early *Newington*, and *brown Nutmeg Peaches*.

Mr. *Fairchild*'s early, the *Alrouge*, and *Newington Nectarines*.

The *Maſculine* and *Bruxelles Apricocks*.

The *May Duke* and *May Cherries*.

As for *Grapes*, the *white* and *black ſweet Water*.

The large, *July*, the *Burgundy*, the *Malmſey*, the *Royal Muſcadine Grapes*.

Gooſberries, the *Dutch white*, the *Dutch early green*, and the *Walnut Gooſberries*.

Currants, the *large Dutch white*, the *large Dutch red Currants*.

He ſays, if a Frame be made according to the foregoing Directions in the Summer Time, it may be planted the ſame Summer, with the before-mentioned Fruit, except the *Grapes*, which he has not yet had Experience, whether *Vines* will bear tranſplanting at that Seaſon, or not: But the reſt he has try'd, and they will do, very well.

One Advantage in planting theſe Trees in Summer is, that they will form very good Roots before Winter, and will againſt the following Spring be ſo well ſtored with Sap, that there will not appear any ſign of their having been removed. They will produce very good Wood and bear very well.

He is of Opinion, that it will be neceſſary to take this Advantage, if the Deſign be to force them to bloſſom ſooner than is ordinary; becauſe if the Roots be not well furniſhed, the Fruits cannot have ſufficient Nouriſhment.

And beſides, Trees in the Summer do ſeldom, if ever waſte their Strength in *Autumn* Shoots, or make any Attempts towards it, till *September* or *October*, when the Froſts, that uſually come then, put a Stop to it.

But if it be found, that they incline to put forth Shoots in *Autumn*, they ſhould not be encouraged ſo to do, either by covering the Frames with Glaſſes, or by laying hot Dung to the back of the Paling, for that would induce the Bloſſom Buds to open imperfectly, and ſo the Fruit they promiſe the next Spring would be loſt; but they ought to have Time allowed them for digeſting their Juice before they are forced.

He ſays, he finds by Experience the Trees will be injured, if the Heat be applied before *November*; and that the Time for applying the *Heat* for bringing eithey *Duke* or *May Cherries*, is about the Middle or latter End of that Month; and applying *Heat* at the ſame Time would do for *Apricocks*, ſo that the maſculine *Apricock* will in *February* be as large as *Duke Cherries*, and will be ripe by the Beginning of *April*.

Cherries, thus forced, will not hold ſo well as *Apricocks*, tho' the former will laſt perhaps for ſeven Yearss in good Plight; but *Apricocks* will thrive and proſper thus many Years.

He is of Opinion, that Mr. *Fairchild*'s early *Nectarines*, would ripen much about the ſame Time as the *Maſculine Apricock*, if they were both forc'd at the ſame Time; and the Bruggnon Nectarine would follow that; as to the forward Sorts of *Plums*, they have been try'd, and do ripen about the latter End of *April*.

GooſberriesTrees would produce *green* Fruit fit forTarts in *January* and *February*, and probably would ripen about the End of *March*, or the Beginning of *April* at the fartheſt.

Currants, which tend to ſhoot forward, might by the ſame *Heat* that brings *Cherries* in *February*, be forc'd to produce ripe Fruit in *April*, if not ſooner.

The Method of planting Trees in theſe Frames.] Theſe Trees muſt be planted ſo cloſe to the Paling, as that the Roots will run under the Paling, and draw their Nouriſhment equally from the Earth, round about them, whereas Trees planted againſt Walls muſt not be planted cloſe to the Wall, becauſe the Foundations of Walls lie to deep in the Ground for the Roots of the Trees do draw Nouriſhment on the Wall ſide.

As for the Diſtance of theſe Trees one from another, four or five Foot will be ſufficient, or at Diſtances proportionable to the Shoots they have upon them.

It would not be amiſs, if the Trees had been trained beforehand for two or three Years in Eſpaliers, or againſt Walls, becauſe, if ſo, the Frame might be filled the ſooner with bearing Wood.

As for himſelf, he ſays, he ſhould not ſcruple to remove Trees that had been planted againſt Walls, rather than to want ſuch as were Bearers in theſe rcing Frames; for they may at a greater Age be tranſplanted with Safety, by the new Method. See *Tranſplanting*.

The higher Parts of the Pales being furniſhed with *Apricocks*, *Cherries*, *Nectarines*, *Peaches* and *Plums*; the lower ſmall Spaces between them may be filled up with *Currants*, *Gooſberries* and *Roſes*.

As to the pruning theſe Trees.] The Time of pruning Trees in theſe Frames muſt not be the ſame as in other Trees; becauſe in the common Caſe of Stone Fruit againſt Walls, the Spring does not begin till the End of *January* or *February*, and therefore theſe Trees are left unpruned, till the Spring begins to ſtir, and alſo that they may not be wounded till they have Strength enough, and a favourable Temper of Air, that they may grow freely, and what will help their wounded Parts; but in the *forcing* Frames the Spring, begins in *November*; therefore they ſhould be pruned about a Week before the *Heat* is apply'd to them; for then the Air will be ſo artificially tempered as to ſet the Teees a-growing, and the Froſts cannot come at them, if the Glaſſes be ſet up as ſoon as they are pruned. As for the Manner of pruning, ſee the ſeveral Sorts under the Article *Pruning*; or Mr. *Bradley*'s Directions for *Apricocks*, *Nectarines*, *Peaches*, &c, under their proper *Articles*.

The nailing of theſe Trees.] Every Branch that ſhoots, muſt be laid as cloſe to the Pales as can be; for the Fruit which touches the Pales will be ripe a Month ſooner than thoſe that lie but two Inches from them; for Mr. *Bradley* ſays, he has ſeen the Tops of the Trees have Bloſſoms a Month or ſix Weeks before the Bottom; and ſometimes one Branch has been full of Bloſſoms, when there have been half a Score, or more, Branches of the ſame Tree have not ſtirred till the Fruit of the firſt Blower has been almoſt ripe, and for all that the Tree has done very well; and it is no uncommon Thing for ſuch Trees to have Fruit ripening upon them for near three Months continnally.

As for *Gooſberries*, ſuch Plants as are planted in theſe Frames, ſhould be ſuch as have ſpread, and when as many Shoots have been nailed to the Pales as may conveniently be done, others may be left at a Diſtance from the Pales to ſucceed the others in ripening.

If they are taken up in the Summer, and managed according to his new Method, they will bear the firſt Year as well as if they had not been tranſplanted.

The *Currans* may be ordered after the ſame Manner, and ſo alſo may the *Roſes*, and the beſt Kind of *Roſe* for this Purpoſe is the *Cluſter monthly Roſe*, which ought always to be topped about the End of *July*, or the Beginning of *Auguſt*, to make them put out a good Number of flower Buds.

Of laying the Dung to the Pales.] The Dung before it be laid to the Back of the Pales ſhould be toſſed up in an Heap, and lie for ſome Days, that it may yield an equal Heat every where, and be conſtant.

When it has been thus prepar'd, it ſhould be laid about four Foot thick at the Baſe, and ſo ſloping till it is but two Foot wide at the Top. It ſhould be laid at the firſt within about four Inches of the Top of the Pales, for it will ſink to about three Foot in ſix Weeks Time, and then ſome freſh Dung muſt be laid, becauſe the firſt *Heat* will not do much more than ſwell the Buds of the Trees, or bring them to a *green* Colour, or at the moſt will but barely ſhew the Colour of the Bloſſom Buds. But according as the Froſts ſhall have happened to have had more or leſs Influence over the Buds; this will happen ſooner or later.

If theſe Trees be covered with the Glaſſes it will contribute very much to forward their bloſſoming; for tho' their Bloſſoms will not be deſtroyed by the Froſts, yet the more the Froſt comes at them, they will both be the drier and more hard to open.

If the Weather be tolerably mild, they ought not to be hindred from the Benefit of Showers till the Buds begin to ſtir; but afterwards the Glaſſes ſhould be kept conſtantly over them, till the Influence of the Sun is ſomething conſiderable.

But the Doors, which are at each End of the Frame, ſhould in the mean Time be ſet open, when the Wind does not blow too ſharp, and the Sun ſhines any thing warm; and if this does not happen in the Space of a Fortnight, then the Doors at both Ends may be opened, and Mats of *Baſs* or *Canvaſs* ſhould be hung up over the Door-ways, to correct the Winds, and to give the Air leave to circulate in the Frames.

As for *Cherries*, about three Changes of Dung will very near be ſufficient to bring them to a due Ripeneſs in *February*, ſuppoſing each Parcel lies a Month at the Back of the Pales.

But as for *Apricocks*, *Grapes*, *Nectarines*, *Peaches* and *Plums*, if *April* proves cold, the forcing *Heat* muſt be continued till *May* is ſettled; but ſome of the Glaſſes ſhould be opened in the Morning, in *March* and *April*, when the Wind is ſtill, and the Sun warm; and they ſhould be permitted to receive the Showers that fall, while the Fruit is growing; but when they are in Bloſſom no Rain ſhould come near them; for it is evident from Experience, that if Rain falls upon Bloſſoms, before they are ſet for Fruit, they very rarely come to any good.

The Dung that comes from theſe Frames, having loſt its *Heat*, may be laid in Heaps to rot, for the meliorating of ſtubborn Grounds.

Another Thing in relation to planting Fruit in theſe Frames, is to plant thoſe Fruits which come forward together, and thoſe that come later by themſelves; becauſe it will be prejudicial to the forward Fruits, to give them any more *Heat*, when they have done bearing; whereas if later Fruits are ſet amongſt them that do require more *Heat*, then they muſt have it, ſome of them perhaps requiring an artificial *Heat* till *May*.

There may alſo a Row or two of *ſcarlet Strawberries* be planted near to the Back of this Frame; and theſe you may expect to be ripe by the End of *February* or Beginning of *March*.

As for the *Vines*, they may probably be brought to bloſſom, and have ripe *Grapes* in *May*.

There may alſo be here and there planted a monthly *Roſe* Tree, and *Hyacinths*, *Jonquils*, *Narciſſus*, *Polyanthus*; and early *Tulips* might be planted in the Borders; and then the Products of the Frame might be.

In December.

Hyacinths and *Tulips*.

January.

Apricock Bloſſoms, *Cherry Bloſſoms*, *Green Gooſberries*, *Hyacinths*, *Peach Bloſſoms*, *Plum Bloſſoms*, young *Roſe Buds*, beginning to appear, *Strawberry Bloſſoms*, *Tulips*.

February.

Green Apricocks, ripe *Cherries*, *Currans* pretty large, *green* Gooſberries, Jonquils, *Narciſſus*, *green Peaches*, *green Plums*, *Polyanthos*, *Roſes*, a few ripe, *Strawberries*, ſome of the latter *Tulips*, and *Vines* alſo may be expected to put out their *Bloſſoms*.

March.

Green Apricocks, *Duke Cherries*, *Currans* beginning to turn, if the Weather be favourable: about the latter End; *green Gooſberries*, ſmall *green Grapes*, *Jonquils*, *Narciſſus*, *Roſes*, *Strawberries*, *Tulips*.

April.

The maſculine *Apricock* ripe, *Duke Cherries* ripe, *Currans*, *Gooſberries*, *Grapes* ſo forward as to be ripe the latter End of the next Month, early *Nectarines*, early *Plums*, and ripe *Peaches*; at the End of the Month, *Roſes* and *Strawberries*.

Alſo theſe Sorts of forcing Frames he recommends for bringing forward *Artichokes*, *Beans*, *Kidney Beans*, *Colliflowers*, *Cabbage-Lettuce*, early *Mint*, *Naſturtium-Flowers* and *Peas*. Theſe ſhould have a Border diſpos'd for them.

He ſays he has ſeen ſome of the ſecond *Dwarf Peas*, which were fit for gathering about the Tenth of *January*. Theſe were planted cloſe to the Pales, and kept up with Packthread.

And he has been told of ſome that have been fit to be gathered at *Chriſtmaſs*, that had been ſown about the middle of *September*, and were only ſheltered from the Froſts in the Nights, with Glaſſes, till the Beginning of *November*, and then had hot Dung applied to them.

The *Beans* that were next to the Row of *Peas* were fit for gathering about the middle of *February*; and the *Mint* held very good from *November* till it was plenty in natural Borders.

Cabbage Lettuce of the *brown Dutch* Kind were in an open Part of ſuch a Border, very good about the middle of *February*, and ſuch *Lettuces*, eſpecially the imperial ones, as had cabbaged in *October*, continued very ſound till *January*.

About the latter End of *January*, when the *Peas* are gone, the Earth may be refreſh'd and *Kidney Beans* of the *Batterſea* Kind may be ſet, and they will begin to run by that Time the *Beans* are gathered, which will be about the latter End of *February*, and will be fit for gathering the Beginning of *April*, and will continue daily affording freſh Fruit till the End of *May*.

The *Naſturtiums* that have been ſown at the End of *October*, or in *November*, will be in Bloſſom about the End of *April*, or the Beginning of *May*.

Artichokes will be fit for cutting by the Beginning of *February*; ſo that in ſuch a Frame will be produced in

December. and *February.*

Cabbage Lettuce, *Mint*, *Green Peas*, *young* Sallets.

February.

The ſame as the laſt Months, alſo *Artichokes*, *Beans* and *green Colly-Flowers.*

March.

The ſame as in the laſt, alſo *Kidney-Beans* and *Naſturtium Flowers.*

He ſays, that whereas in order to produce *Cherries* in *December*, it has been the Practice of ſome Perſons, in the *Spring* of the Year, to pluck off the Bloſſoms, at their firſt budding out, and to keep the Tree, during the *Summer*, very dry, by hindring the Rain to come at it, and by little and little to give it gentle Waterings about the End of *July* or in *Auguſt*, ſo that the Trees have been in full Flower about the latter End of *September*. In ſuch Caſes it is his Opinion, that the Trees muſt be kept continually under the Glaſſes, and the Dung muſt be applied to the Back of the Pales, about the End of *October*, if the Weather prove cold, or the Bebinning of *November*, and freſh Dung muſt be laid once a Month; and if ſo managed ripe *Cherries* may be expected in *December.*

As for the *Morello Cherry*, which is a late Comer, that will hang upon the Tree to the End of *October*; and he is of Opinion, if it were ſheltered from the Froſts with Mats or Glaſſes, the Fruit might be preſerved upon the Tree 'till *December*; for it is a Fruit that is not apt to rot as other *Cherries*.

Theſe Trees are apt to bloſſom twice a Year; the firſt Time about the latter End of *April*, and the ſecond about the latter End of *July*. And it is very probable, that the *Cherries* that hang on the Trees in *October*, were the Fruit that proceeded from the ſecond bloſſoming.

This is the moſt hardy of all the Race of *Cherries*. He ſays, that *William Tempeſt* Eſq; had a *Cherry-Tree* of this Sort, that he thinks, ripened from the ſecond Bloſſoms in *November*:

He therefore adviſes to take off all the Bloſſoms that are bloomed in the *Spring*, from ſome of theſe Trees, to cauſe them to bloſſom the better for a *Winter* Crop.

As for *Currans*, if the Buſhes are well matted up as ſoon as the *Currans* are coloured, they will keep good upon the Trees till *October*; but the Mats muſt be put on in a very dry Seaſon.

He is of Opinion, that there are many Sorts of Fruit in *England*, that will hang upon the Trees the whole Year round, if they are but preſerved from Froſts, and will all that Time look fair to the Eye.

He gives an Inſtance of a ſmall *Nonpareile Apple-Tree*, which Mr. *Fairchild* has in a Pot, the Fruit of which ſeem'd likely to hold good till the Bloſſoms of the ſame Year had ripened their Fruit.

As for *Strawberries*, he adviſes, That ſome of them, as the *ſcarlet* and *white Wood*-Kinds, and alſo the *Hautboy Strawberry*, which bear Fruit in *September* and *October*, be propagated in Beds; but then the Bloſſoms of all of them muſt be pinch'd off in the *Spring*, as ſoon as they begin to appear. And the Plants muſt alſo be kept dry 'till the Middle of *July*; and then muſt have gentle Refreſhments, by Watering: And then they will not fail to bear; but muſt be defended by Mats and Hoops, from the froſty Nights in *September*, in Order to cauſe them to hold bearing 'till towards the End of *October*.

He ſays, That at this *Autumn*-Bloſſoming, upon two Beds about four Foot wide, and thirty five Foot long, he has had near a Quart of *Strawberries* in a Day.

As for *Kidney-Beans*, He ſays, ſome that he ſow'd in *July*, about the Middle of the Month, began to bear Fruit about the End of *September*; but the Froſts being pretty ſharp about the Middle of *October*, and the Plants not being ſhelter'd, they were all loſt. But a Friend of his, ſetting ſome of the *Dwarf Kidney-Beans* about the End of *July*, in common Hot-Bed Frames, they began about the Middle of *October* to have *Beans* upon them; and tho' he put no Glaſſes over them, till the ſmall Froſts began at the End of *Auguſt*, and that only at Nights, he gathered *Beans* till the Middle of *November*, without any artificial Heat.

He alſo informs us, That the next Year he procured Baskets about ten Inches over, a little open on the Sides; and ſet *Beans* in them about the End of *July*, and others about the Middle of *Auguſt*; and having plac'd them in Frames, for the Conveniency of covering them when the Froſts began to come in. And then having made ready Hot-beds that ſhould yield a very gentle Heat, and ſet the Baskets in them, about the Middle of *October*, thoſe *Beans* that had been ſet in *July*, had Fruit in *October*; and thoſe planted in *Auguſt* did not bear Fruit till the Beginning of *November*; which was fit for Gathering about the End of the ſame Month; and the others yielded a Plenty of *Beans* all this while.

About the End of *November*, he caus'd a freſh Hot-bed to be made, and ſet into it thoſe *Beans* that he had rais'd in *Auguſt*, and they produc'd Fruit, which he continu'd gathering till near *Chriſtmaſs*; and he is of Opinion, That if they had been taken good Care of, they would have laſted good till *January*.

24. ROCAMBOLES.

ROCAMBOLES, Mr. *Mortimer* ſays, are a Sort of *wild Garlick*, otherwiſe call'd *Spaniſh Garlick*; and is multiply'd either by the *Seed*, which is about the Bigneſs of an ordinary *Pea*; or by its *Cloves*. See *Eſchalots*.

The *Rocambole*, Mr. *Bradley* ſays, is the Head of the Flower-Stem of the Plant, compos'd of many ſmall Bulbs; which, as ſoon as they are ripe, ſhould be gather'd, and kept dry. That tho' this Plant has been formerly in great Eſteem for its high Reliſh in Sauces, a ſmall Quantity of it being ſufficient to give the Reliſh of many *Onions*; yet it is now-a-Days hardly to be met with.

It loves a *ſandy Loam*, without any Mixture of Dung; and is increas'd by planting the Offſets of the Roots, or little Bulbs in *September*, about ſix Inches diſtant one from another.

25. ROCKET.

THIS Plant, ſays Mr. *Mortimer*, is one of the Sallad Furnitures; the Leaf is pretty much like that of the *Radiſh*. It is multiply'd by *Seed*, which is very ſmall, and of a *Cinnamon* or *dark tann'd* Colour, ſown in the *Spring*. It may alſo be increas'd by *Cuttings* or *Slips*.

26. *The* Double-flower'd ROCKET.

MR. *Bradley* ſays, There are two Sorts of *Double-Rockets* known to the Gardeners; the *white flowering Rocket*, and the *Fleſh-colour'd flowering Rocket*; the firſt of which is in moſt Eſteem, and moſt common to be found in Gardens.

They delight in a *loamy Soil*, an open Expoſure, and are increas'd by *Slips* taken from about the Root, and planted in *March*; and blow upon Stalks about a Foot and half high in *May*.

27. ROOTS.

How the Roots of Trees receive their Nouriſhment in the Earth.

MONS. *Liger* ſays, It is to be conſidered, that there are two Principles in the Production of Trees:

1. That a Tree that is planted in the Earth, has a firſt Principle of Life.

2. That the Heat of the Sun, which communicates its Vertue to the Tree, and without which it would produce nothing, is the ſecond Principle.

As to the *Firſt*, It is from this Principle of Life in Trees, that the Roots draw and receive their Nouriſhment from the Salts that are in the Earth, that have been prepar'd by Rains and melted Snow.

As to the *Second*, The Heat of the Sun digeſts this Nouriſhment, ſo that of a Liquid (as it was before) it in Time gives it a certain Quality of Matter, fit for the Production of a Tree; which in Time produces Branches, Buds, Leaves, Bloſſoms and Fruit. He adviſes to uncover the Roots of Fruit-Trees, and examine which are largeſt; and retrench thoſe Roots generally two or three, ſometimes four, on one Side or the other, according to the Vigour of the Tree; but it muſt always be three or four Inches from the Body of the Tree: Cover the

Roots again with Earth, and the Tree will quickly bear. For the Tree, when ſome of the Roots are retrench'd, has then no more than a moderate Sap, which rounds the Buds, and makes them knit: Whereas, when the Sap over-abounds, it ſwells too much in the Buds, and makes them grow long, inſtead of round.

Roots do not ſhoot out till after the Stem; becauſe the moſt ſubtle Part of the Sap mounts up to form the Stem, and the moſt material preſſes down to form the Roots. The Roots at their firſt ſprouting are all *white*, and very ſmall: Some Time after, they grow to a *gravel* Colour; and at length, if they meet with Earth proper for them, they extend and ſpread themſelves by inceſſantly attracting and receiving new Salts and new Humidities, which they convey to the Stem; and thus the Tree is increas'd, till it comes to its full Growth.

Mr. *Cook* ſays, That there are many Trees that are only to be rais'd from Part of a Root of another Tree: As the *Abele*, the *Aſpers*, the *Cherry*, the *Crab-Tree*, the *Elm*, the *Maple*, the *Plum*, the *Poplar*, the *Servis*, the *White-Buſh*, &c.

To raiſe theſe Trees, he directs, That the Tree, whoſe Roots you would uſe, be a thriving Tree, neither too young, nor too old; becauſe, if it be too young, the Roots will be too ſmall for the Purpoſe; and if it be too old, perhaps the Roots may be in a *decaying* Condition, and if ſo, not fit for the Purpoſe.

As for the Size of the Roots, he adviſes, That they be not leſs than a Quarter of an Inch, nor larger than half an Inch Diameter; and they will be moſt likely to ſucceed, if they be taken from a young, thriving Tree; becauſe, in ſuch the Sap is plentiful, and for that Reaſon will put forth the greater Shoot.

As for the Manner that this is to be perform'd; He adviſes, to dig round thoſe Trees you deſign to multiply that Way, the latter End of *February*, or the Beginning of *March*, till you come to the Roots of the Size before directed: Then with a ſharp Knife to cut them three or four Inches from the great Root, very ſmooth at the Place you cut them off; and raiſe up the upper Part of the Roots you cut off, and put in Earth to keep them up; ſo that when the Ground is level'd again, the Ends of the Roots may be two or three Inches above the Ground.

He is of Opinion, That the foremention'd Times are the beſt for this Operation, becauſe the Sun is then haſtening to the vernal *Æquinox*; the Sun having Heat, and a ſtronger Faculty of Drawing, on the Head of the Tree, does by its ſecret Influences, draw on the ſeveral Branches on the Head, and the Head from the Body, and both Head and Body from the Roots. And the Roots being ſupply'd with Sap from the Earth to furniſh the Body and Head; it is then the fitter to produce a new Tree with the Sap, more likely than in *Summer*-Time, when it is in its full Sap : For, at that Time, the abundance of Sap will rather choke a Bud, than produce one out of its Root, altho' the Root be of that Sort which will produce Trees from any Parts of it.

Then, as to the Performing this Operation in *Winter*, altho' there is a continual Motion and aſcending of the Sap from the Roots (unleſs it be accidentally hinder'd by Froſts) all the Year long : Yet to cut the Roots at ſuch Time, and to expoſe them (being thus cut) to the Severity of the Weather, which is oftentimes great ; the Froſt and Wet would ſo pierce the new Wounds, that there is more Likelihood that they would be deſtroy'd, rather than produce new Plants. But if they ſhould live, the *Spring* is the Time for their Budding ; and ſo conſequently the beſt Time.

The Reaſon he gives for cutting off the Roots at three or four Inches from the great Roots, is, That the three or four Inches of the Root will put forth many Roots at the Ends, eſpecially if they be cut off ſmooth ; and ſo it will be better for the Tree from whence the Roots were taken.

The Way of Multiplying Trees, by cutting Roots to Pieces.]

Doctor *Agricola* tells us, That having demonſtrated that no Plant can grow without a *Root*, or ſomething which may ſerve *Root* ; and alſo that *Roots* produce *Sprouts* ; from thence it may be inferr'd, That *Roots* when manag'd according to Art, muſt in all Places produce the like *Suckers*, or little *Trees* : Of which he gives the following Inſtances :

He tells us, That he took up in his Garden ſeveral *Roots* of all Sorts of *Trees* ; as *Apple-Trees*, *Apricock - Trees*, *white Elders*, *Laurels*, *Lemon - Trees*, *Peach-Trees*, *Pear-Trees*, *Pomegranate-Trees*, *Quince-Trees*, *Vines*, and *Walnut-Trees* ; and cut the *Roots* to Pieces in all Sorts of Manners.

He firſt took a large *Branch* of a *Root*, and poliſh'd and ſmooth'd it at the upper or great End, and alſo at the Places where the *Side Roots*, and little *Fibres*, or *Overtures* were. Then he cover'd over the ſmooth End and other Places, with the *Mummy* or *prepared Wax*, [See *Mummy* or *Wax*,] and dreſs'd all the Places where there was any Overture ; and ſet it in the Earth a Hand deep, ſo that the little Parts of the Root might not take too deep hold ; and left it extended at length, and but juſt cover'd it with Earth. That afterwards he laid good Earth on it, and preſs'd it down pretty hard ; and in a ſmall Time the *Root* opened on all Sides, and look'd as if it had been ſlaſh'd and cut, being full of little Overtures, which reſembled the Mouths of Fiſhes.

From theſe Gaps there proceeded an innumerable Number of Sprigs, both large and ſmall intermixt ; which ſprung up ſo faſt, that they were above a Foot above the Ground in a Month's Time; and new *Roots* ſprang out of the great *Root*.

That he alſo took a Piece of the *Root* of a *Peach-Tree*, and cut it into a great many little Bits about the Length of his Finger, or a little longer; and having ſmooth'd the Ends, and dreſs'd them with his *Mummy* or *prepared Wax*, and planted them perpendicularly in the Earth, the ſmall End downwards; ſo that the upper Part of the *Root* ſtood about half an Inch out of the Earth; they ſprang up in different Manners; ſome at Top, and ſome at Bottom, in a curvilineal Form. It was the ſame with the little new *Roots* which ſprouted from the old; ſome of which ſhot out below, and ſome above.

This Operation was perform'd in *June* and *July*.

He adds, That he proceeded in the ſame Method with the *Roots* of *Citron-Trees*, *Pomegranates*, *Quince-Trees*, and *Vines*, which all ſprang out,

He adds, That the ſame may be perform'd on the *Roots* of *wild Trees* and *Shrubs*; as, the *Alder*, the *Aſh*, the *wild Beech*, the *Birch*, the *Juniper*, the *Lime-Tree*, the *Oak*, the *Pine-Tree*, the *wild Plum*, and *Willows*; he having made Tryals of moſt of them, and they have ſucceeded.

This Operation may be perform'd in the *Spring*, and even in *Summer*; but he accounts *Autumn* the moſt proper Seaſon for it.

As to the further Illuſtration of this Matter, he proceeds: That a Tree may very well ſpare two or three great *Roots* without Damage, provided the main Middle-*Root* be not touch'd, and the Wounds be dreſs'd: Theſe long and thick *Roots* being taken from large Trees, you may either cut or ſaw them into Pieces of about a Foot, or a Foot and half long; and as to the ſmaller Pieces, you may ſmooth them with a Knife: But the larger *Roots*, he adviſes to put into his new-invented *Root-Bench*, (which is deſcrib'd in his Philoſophical Treatiſe of *Agriculture*) and there to ſmooth them. When the Pieces of *Root* are ſmooth'd at both Ends with a Knife, then they are to be dreſs'd with the *Grafting-Wax*; which ſee under the Article *Wax*, in the Letter *W*.

As for the Seaſon of performing this Operation; tho' it will ſucceed at any Seaſon of the Year, yet *September*, *October* or *November*, are the moſt proper Months.

The only Difference being, that what is planted in the *Spring*, will ſhoot in *June* or *July*; but what is planted in *Autumn* will come forth in *April*.

Of Grafting ROOTS.

Dr. *Agricola* tells us, That having made the following Obſervations, he ſet about *Grafting* of *Roots* of Trees.

1. He obſerv'd, That Nature had plac'd every *Trunk* upon a

Root; and that nothing could grow without *Roots*.

2. That *Roots* were made up with the ſame Parts with the *Trunks*; the only Difference being the Largeneſs of the *Veſſels* and *Pores*.

3. That *Roots* were naturally full of a hard, callous Subſtance; and that out of a *Root* which was ſplit, there came the very ſame Subſtance with that by which the *Trunk* and *Root* were (as it were) conglutinated and joined together.

4. That he obſerved, when he ſplit a Bit of a Root into ſeveral Pieces, every one could ſhoot out new Roots, through which they might receive the nouriſhing Juice from the Ground, and diſperſe it to thoſe Parts that wanted it.

That theſe, and Reflections of the ſame Nature, put him upon trying the Experiment, Whether out of all large *Trunks*, *Branches* or *Shoots*, he could produce Trees, and bring them to Perfection by a Proportionable Quantity of *Roots*.

That he was pretty ſure of Succeſs, knowing that a good large *Branch* has of and in it ſelf a good Store of nouriſhing *Juice*; and that if it be plac'd in, upon, or between the *Root*, the *Trunk* being intirely compos'd of ſmall *Pipes*, *Pores*, &c. does by Means of the intimate Communication, immediately receive a Supply of nouriſhing Juice, which the Root quickly draws to it ſelf, when it is put into the Ground; and afterwards diſtributes it to the other Parts.

And in the mean Time, there grows a *Calloſity*, both from the *Trunk* and *Branch*, and joins them both together; ſo that the two Pieces become one.

Therefore, when he intended to raiſe Trees from *Branches*, of ten or fifteen Foot long, or upwards, he tells us, He procur'd either ſome *Roots* of the ſame Kind as the Trees, or thoſe of as near a Kind as he could: He cut them into Pieces of a Foot or two long, according to the Proportion of the *Trunk* or *Branch*; and choſe the thickeſt for the biggeſt, and the thinneſt for the ſmalleſt *Trunks* or *Branches*.

But he ſays, In Order to proceed upon the ſurer Grounds, it is the beſt Way to ſet the Pieces of the *Roots* into the Ground ſome Time before, being firſt dreſs'd both at Top and Bottom, that ſo they may ſhoot new *Roots*.

This Way may ſucceed, if the Pieces of the *Roots* be planted in *March* or *April*; becauſe then they may be taken up in *September* or *October*, and be grafted upon. Or elſe the *Roots* may be put under Ground in *Autumn*, and may be ſucceſsfully us'd the following *Spring*.

When a Bit of a *Root* is procur'd, that is well fitted for the Purpoſe, it muſt always be a little bigger than the *Branch*, that the *Calloſity* may get the better over it.

This *Calloſity* does ſometimes proceed from the *Branch* that is grafted upon the *Root*, and oftentimes the Juices of both of them concur to the common Union; particularly when the *Root* and *Trunk* are not of the ſame Kind of Tree.

Branches and *Roots* being procured; you muſt reſolve upon ſome Method of *Inciſion*; of which, he ſays, there are ſeveral Sorts.

For large *Trunks*, he adviſes, to make Uſe of the *Imperial Inciſion*, or that of the *Count* or *Gentleman*; but eſpecially the latter.

For ſmall *Buds*, the common or ſmall *Inciſion* will ſuffice: This is made after the uſual Way of *Grafting*.

As to large *Trunks*, he adviſes, when they are grafted with the *Gentleman's Inciſion*, to place the *Trunk* on a *Bench* fitted for *Inciſions*; and to make a long Cut with a Knife on one Side, like the firſt Cut of a Pen, but ſomewhat longer; and to make ſuch another *Inciſion* on the Top of the *Root*, ſo as to make a counter Cut; and then to ſet them one on another. Theſe two muſt be made ſo, that one is not longer than the other; and when they fit exactly, they muſt be ty'd with a Fillet about the Middle, that they may not be diſjointed.

The common or ſmall *Inciſion* is to be made as in the uſual Way of *Grafting*; but the Cut muſt neither be too wide nor too deep in the *Root*. The *Trunk* muſt alſo be cut on both Sides in the Form of a broad but ſhort Cork or Stopple; for if it be long, the Cut in the *Root* muſt alſo be long and deep; and if ſo, the Wound being large, would be longer in healing. Theſe two being fitted together and ty'd, the Cut of both muſt be done over with the *Mummy*, being warmed.

And as to the large *Branches*, becauſe ſome Perſons wanting Skill to manage the Fire, do ſometimes burn the *Trunks*, and by that Means render their Work unſucceſsful, he therefore contriv'd the *ſoft Mummy*; and cutting ſome flat, long, and narrow Pieces of it, ſuch as the Cuts requir'd; and having a little warm'd them at the Fire, he apply'd them on both Sides the Cuts, and then ty'd them up with Bark, and faſtned two Sticks to it, that the Ligature might not be ſhaken off either by Wind or any other Violence. This being done, he put them into the Ground, ſo that the Cuts were horizontal: Then beating the Earth pretty hard about them, the Branches united one with another.

The little *Branches* and *Trunks* were ordered as the great ones, and he always ſupported them with little forked Sticks, ſomewhat larger at the Top, and ſmaller at the Bottom, in Proportion to the Bigneſs of the *Branch* or *Trunk*.

The fitteſt Time for the large *Branches* or *Trunks*, is *September*, *October* and *November*; and when the *Winter* has not been very ſevere, it may be done in *February*, *March* or *April*.

They muſt be guarded from the Heat of the Sun; but tho' the Branches ſhould loſe moſt of their Leaves, it would be of no great Conſequence; becauſe in a few Weeks Time they will put forth new ones.

Mr. *Bradley* ſays, There is a Method of Propagating large Trees which has not yet been much practiſed in *England.* Dr. *Agricola*, of *Ratisbon*, has given us Methods of performing this Operation; one of which he has try'd, and it ſucceeds very well. And that ſome of his Friends have, at his Requeſt, made Tryals of other Ways; and he hopes quickly to have an Opportunity of viewing them, and giving his Opinion concerning them. But this he dares venture to affirm, That we have by that Means an Opportunity of Propagating many Kinds of Plants, which we have, 'till lately, wanted Means to perform: And doubts not but that the *Tulip-Tree* might be increas'd by that Method.

See more of this *Root-Grafting*, under the Article *Grafting*, in Letter *G*.

28. RORID.

RORID ſignifies Dewey, or Moiſt.

29. RORIFEROUS.

RORIFEROUS bringing Dew.

30. ROSE-TREES.

Various Kinds.]
THERE is a greater Variety of *Roſes* propagated by Gardeners than of any other flowering Tree or Shrub whatſoever.

Mr. *Bradley* ſays, the Gardeners diſtinguiſh them by the following Names. The *Cinamon Roſe*, the *Monthly Roſe*, the *Cluſter monthly Roſe*, the *Damask Roſe*, the *Roſa Mundi*, the *York* and *Lancaſter Roſe*, the *Centifol* or *Province Roſe.*

Monſ. *Liger* reckons up the *Sweet ſmelling Roſe*, and the *Roſe* without *Smell*, the *Dutch hundred leav'd Roſe*, the *Damask Roſe*, the *pale red Roſe*, the *Province Roſe*, the *Virginian Roſe*, the *ſtreaked Roſe*, the *ſingle Roſe* of a deep *red* Colour, the *Monthly Roſe*, the *Muſcadine Roſe*, and the *yellow Roſe.*

Mr. *Mortimer* diſtributes them into four Claſſes, or Kinds; the *Engliſh red Roſe*, of which Sort the Flowers of ſome are of a far deeper *red* than others.

The *Roſa Mundi*, or *Roſe of the World*, which only differs from the former in the Colour of its Leaves, which are of a *pale bluſh* Colour, directly ſpotted through every Leaf of the double Flower, which is the moſt Beautiful of any; the *red Belgick Roſe*, which is much taller than the common Dwarf, *Red* or *Gilly Flower Roſe*, which grows lower than the ordinary *Roſe*, whoſe Flowers are of a pleaſant *Carnation* Colour. The *Hungarian Roſe*, which has *green* Shoots, and whoſe Flowers are of a *paler red*, as thoſe of the *red Province Roſe* are, whoſe Branches and Leaves are larger and *greener*, than thoſe of the *common red Roſe.*

The *Frankfort Roſe*, that has ſtrong *reddiſh* Shoots full of Thorns, thick Flowers, and the Button under the *Roſe* bigger than ordinary. The *Roſe* without *Thorns*; that has *green* and ſmooth Shoots, and Leaves without any *Thorns* at all, and the Flowers of a *pale red*, ſpreading their Leaves. The *double Velvet Roſe*, whoſe young Shoots are of a ſad *reddiſh* Colour, with very few or no *Thorns*; but this bears but a few Flowers. The *Marble Roſe*, which in Growth is much like the former; but the Leaves are larger, and of a light *red* Colour, marbled and veined.

Under the ſecond Claſs he ranks the *Damask* or *pale* coloured *red Roſe*, which being, he ſays, the ancient Inhabitant of *England*; it needs no deſcribing. The *York* and *Lancaſter* or partly coloured *red Roſe*, differs from the former, only in that its Flowers are parted and marked. The *Chryſtal Roſe*, that is like the laſt, excepting only that the Marks of the Flowers are much fairer,. and better than thoſe of the former. The elegant variegated *Damask Roſe*, whoſe Shoots are *redder* and ſhorter than the *Chryſtal*; its Leaves ſmaller, and its Flowers ſomewhat double. The *Damask Province Roſe*, which has Shoots and Leaves longer than any of the preceeding, of a *reddiſh green*, and whoſe Flowers are very large. The *Bluſh Belgick Roſe*, whoſe Branches are larger, and fuller of *Thorns* than any of the former; its Flowers grow thicker and are ſweet ſcented, ſo that the Water diſtilled from them is almoſt as good as that of the *Damask Roſe*. The *Monthly Roſe*, which bears Flowers only three Months in *England*, *viz. June*, *Auguſt* and *September*.

Under the third Claſs he mentions the *yellow Roſe*, of which Kind the *ſingle yellow Roſe* grows as high as the *Damask*, and the young Shoots of it are full of hairy Prickles of dark *red* ſmall Leaves, the Flowers ſingle, and of a pale *yellow*. The *double yellow Roſe*, whoſe Shoots are ſmall, and not ſo *red* as thoſe of the ſingle Kind: the Flowers compoſed of many ſmall pale *yellow* Leaves, with a great Thrum in the Middle. The *ſcarlet Roſe* of *Auſtria*, that is much like to the *ſingle yellow Roſe*, except that the Inſide of the Leaves of the Flowers is a fine *ſcarlet*, and the outſide of a pale *Brimſtone* Colour.

Under the fourth Claſs are compriz'd the *Common white Roſe*, which is well known; of which there are two Sorts, one much fairer and more double than the other.

The *Double Musk Roſe*, which riſes high, with many *green* Branches, and ſhining dark *green* Leaves, arm'd with great ſharp *Thorns*, with Flowers which come forth in a Tuft not very double; there is alſo another of this Kind bearing ſingle *Roſes*; the Flowers of both of them have a musky Scent.

The *Bluſh Roſe* that differs little from the laſt but one, but in the Colour of its Flowers, which at the firſt opening are of a fine pleaſant *Bluſh* Colour, which afterwards grow *whitiſh*. The *Damask Roſe*, or the *white Cinnamon Roſe*, has larger Leaves than the *double Musk Roſe*, but the Leaves are of a *whiter green*, the Flowers larger, *whiter* and more *double* than the other, but not quite ſo ſweet. The *Spaniſh Musk Roſe*, whoſe Branches are *green*, bigger than the following, and the Flowers ſingle. The *Evergreen Roſe*, growing like wild *Eglantine*, the Leaves fall not off in the Winter, as thoſe of other *Roſes* do; the Flowers conſiſt but of five Leaves, of a pure *white* Colour, and ſtand four or five together, at the End of the Branches. The *double Eglantine* which bears double Flowers, made up of two or three Rows of Leaves of a very pretty *red* Colour. The *Great Apple Roſe*, which has a large Stock; its Branches are *reddiſh*, its *Thorns green*, and its ſingle ſmall Flowers ſtand on prickly Bottoms.

After having given us this long Catalogue of *Roſes*, he tells us, that among all theſe Varieties the following are eſteemed the beſt.

Among the *red Roſes*; the *Roſa Mundi*, the *red Belgick*, the *red Marble*, the *red Province Roſe*, and the *Roſe* with *Thorns*.

Among the *Damask*, the *Cryſtal Roſe*, the *Bluſh Belgick*, the *Monthly* and *Damask Province Roſe*, and the *elegant variegated Damask Roſe*.

Among the *yellow Roſes*, the *ſcarlet Auſtrian Roſe*, and the *double Yellow*.

Among the *white Roſes*, the *Damask Roſe* and the *Bluſh Roſe*.

Mr. *Bradley* ſays, beſide the *Roſes* that he has mentioned there are ſeveral Sorts which he has never ſeen, and that the *Dutches* of *Beauford* told him of ſixteen different Sorts which ſhe had cultivated in her Garden at *Badminton*; but altho' the ſeveral Sorts of *Roſes* differ in their Times of flowering, yet they are all propagated after the ſame Manner, and love a ſtrong holding *Soil*, and delight ſo much in moiſt Places, that they will even grow in Water.

They are to be increaſed by *Layers*, which are to be laid down in *September*, or by *Suckers* which may be taken from the old Roots either in *March* or *September*, and tranſplanted immediately before their Roots grow dry, for they have but few Fibres; but if Neceſſity obliges to keep them out of the Ground for ſome Time, he adviſes to lay them ſix Hours in Water, before planting.

Mr. *Mortimer* ſays, *Roſes* are multiplied either by laying down the Branches in the Earth, or by *inoculating* the Buds of them into other *Shoots*.

He adviſes, in the *Spring*, to prick a great many Holes with an Awl, about a Joint, that will lie in the Earth, and then to cover it with good Mould, to peg it down; and if the Seaſons are dry, to water it now and then, and by *Autumn* it will ſo have taken Root as to be fit to be removed, and cut from its other Part behind the Root, and be remov'd, and become a natural Tree. Such a Tree, he ſays, will be worth two that are budded or grafted, becauſe a great many *Suckers* that come from them will be of the ſame Kind.

As for *inoculating*: the beſt Stocks, he ſays, to *inoculate* upon, are the *Damask*, the *white Frankfort*, and the *wild Eglantine*, and that this Work is to be performed about *Midſummer*.

He adviſes to take care to keep all Stocks of budded *Roſes* from *Suckers*, and that the Buds be inoculated as near the Ground as may be, that the budded Luance may be laid in the Earth to Root after one Years Growth.

But *Roſes* of all Kinds being apt to yield *Suckers* plentifully, the beſt Way to increaſe them is gently to bind down either Part or all the Tree in the *Spring*, and to lay all the Branches in the Ground; and to lay old rotted Dung about the Places where they are laid, which will cauſe them to take Root the ſooner, ſo that by *Autumn* you will have as many rooted Trees as you laid down Branches and all of the ſame Kind, and that too without injuring the old one, which when the Branches laid down are cut off may be very eaſily reduced to its Place again, and will bear as plentifully the next Year as it did before.

He adds, that this laying down the *Branches* prevents not the Tree from bearing Flowers that Year, for the Branches which are laid will be as plentifully ſtored with Flowers, as if they were erect.

Monſ. *Liger* ſays, the *Dutch hundred leafed Roſe*, both with and without *Smell* are multiplied by *Slips* and *Roots*, ſet a Span deep in the Ground, and are to be planted in *October*, *November* or *February*, in good Kitchen Garden *Soil*, in a Place much expoſed to the Sun. In *March* you may prune it.

31. *The* MONTHLY ROSE.

THE *Monthly Roſe*, called alſo the *Roſa omnium Calendarum*, or *Italian double everlaſting Roſe*, is multiplied by *Layers*, and alſo by *Slips* cut off from the Branches in *Autumn*, in *October* or *November*, and thruſt into the Ground, leaving not above two Inches of it out, and in a ſandy *Soil* and ſunny Expoſure.

The *Monthly Roſe* and the *Cluſter Monthly Roſe*, Mr. *Bradley* ſays, if they be planted againſt a warm Wall, begin to blow about the latter End of *March*, or the Beginning of *April*, and continue blowing for almoſt three Months; and if after they have done blowing you prune off the Tops of their Branches, you may expect them to blow again in *Autumn*, and continue blowing almoſt till *Chriſtmaſs*, if the Weather be open.

Mr. *Liger* ſays, that to make theſe Trees bear Flowers in every Month in the Year, or at leaſt in moſt of them, they muſt be pruned two or three Times. The firſt Time is to be in *November*, when they are to be cut almoſt down to the Ground, becauſe the new *Shoots* that ſprout out will produce Flowers more plentifully; the ſecond is to be at the latter End of *March*, or Beginning of *April*, which is to be performed on the new Branches; pruning them to an Eye or two of the Trunk; then you muſt open its Root, and put in *Earth* new inſtead of the old, adding a third Part of Mould half conſumed, and water it immediately, and alſo frequently. *Thirdly*, When the firſt Flowers are paſt, prune the Branches below the Knot where the Flowers grow; the ſame is to be done after every Bearing: but you muſt not water them for fifteen Days after pruning. By this *Method* he ſays, it will be in Bloſſom for three *Months* in the Year.

If theſe *Roſe-Trees* are in open Ground they muſt be covered with long Straw or Straw Mats; or if in Pots or Boxes, houſed in the *Green-houſe*, or they will not ſhoot forth new *Branches*.

He ſays another Way to make them bear a great many Flowers every *Month*, is to bind the *Branches* and to tie them to a *Palliſade*, or Stick ſtuck in the Ground, if they are planted in Caſes.

Mr. *Bradley* relates, That Mr. *Millet*, an ingenious Gardener, who us'd to bring ſeveral Fruits to Perfection, ſome Months before Nature alone would do it, gave no other Reaſon for his Practice, but that the Heat he laid at the Back of his Frames did puſh the Trees nail'd againſt them into Bloſſom, within a few Weeks after he had apply'd the Heat: But he being converſant with him, took Notice, that he prun'd his Trees out of the common Seaſon.

He had *Monthly Roſe-Trees* nail'd againſt the Frames where his forward Fruit-Trees grew, which *Roſe-Trees* were commonly in Bloſſom ſoon after *Chriſtmaſs*.

The Management of theſe was as follows: He prun'd off all the *Flowers*, whether *Roſe*, *Bud*, or *open Flowers*, which he found upon them about the End of *July* or Beginning of *Auguſt*; and at the ſame Time he cut off the Top of thoſe Shoots, which had produc'd *Flowers* that *Summer*; as well as thoſe that had produc'd none; but his chief Dependance was upon thoſe Shoots which had born *Flowers* the ſame *Summer*. And he ſaid, that every *cloſe Bud* would ſpring and ſhoot about ſix Weeks after Pruning; and when the Heat comes to the Trees, every one of the new Shoots would produce *Flowers* at their Ends.

He likewiſe adds, That he has obſerv'd often, That the *cloſe Buds* he ſpeaks of, will lie dormant all the *Winter*, altho' they have not this Sort of Pruning; and would not ſtir 'till the Advancing of the *Spring*. And that he has alſo made this Obſervation, concerning Fruit-Trees, in thoſe Gardens, where the Gardener has had no extraordinary Skill in Pruning, That when Fruit-Trees have been cut too early, or the Bud-Shoots of the ſame *Summer* have been topp'd; the Buds, which were left upon thoſe Shoots, ſprouted on a ſudden before their natural Time; and have bloſſomed at a wrong Seaſon. See the Articles *Pruning* and *Pear-Tree*.

32. *The Double yellow* ROSE.

THESE *Roſes*, Mr. *Mortimer* ſays, will not bear ſo well when they are planted in the Sun, as other *Roſes* will: Therefore he adviſes, that they be ſet in the Shade; and in Order that they may have the fairer Flowers and bear the better, firſt to put a Bud of a ſingle *Roſe* into the Stock of a *Frankfort Roſe*, and near the Ground; and then it will quickly ſhoot a good Length: Alſo to put a Bud of the *double yellow Roſe* of the beſt into that Sprout about a Foot higher, to keep the Root clear from Suckers; and to rub off all Buds but thoſe of the deſired Kind.

When it is grown big enough to bear, he adviſes, the preceeding *Winter* to prune it very near, and cut off all the ſmall Shoots, leaving on none but the bigger, and to cut off the Tops of them too as far as they are ſmall. In the *Spring*, when it buds for Leaves, you muſt rub off the ſmalleſt of them; and when it buds for Flowers, if there be too many, *wipe off the* ſmalleſt, leaving on no more than the Strength of the Tree will bring to Perfection.

Such a Tree ſhould be a Standard, and not too much expoſed to the Sun, but ſhaded, and in a dry Seaſon ſometimes watered: And by this Management, you may expect fair and beautiful Flowers.

He adds, That ſhearing off the Buds when they are put forth, in Order to the retarding the Blowing of the Flowers, is very practicable; and ſo by ſhearing them a ſecond Time, you may cauſe them to be ſtill later; ſo that by this Means you may have *Roſes* when there are no other Flowers: But then you muſt be ſure to ſhear the whole Tree; for if one Part be ſhear'd and the other unſhear'd, the Part unſhear'd will ſpend the Strength and Sap, which you expected would have put forth new Buds; and ſo diſappoint your Expectation.

Monſ. *Liger* ſays, *yellow flower'd Roſe-Trees* are multiply'd by *Shoots* that ſprout out at their Feet, planted in the *Spring*: They love a ſtrong Soil, and the open Air; and that Pruning does not at all agree with them, becauſe they bear their Flowers at the End of their Branches: But yet ill-plac'd Boughs, or ſuch as are worn out, and ſo uſeleſs, you muſt prune, and the laſt even to the Quick.

The Leaves of theſe Flowers, he ſays, are ſo delicate, that the leaſt Rain that falls upon them will make them periſh; and therefore when they are juſt ready to blow, you muſt prune the Branches ſhort, and cover them with Straw-Mats, or ſome ſuch Covering.

In *February* or *March*, you may force this Shrub to bear Flowers every Year.

33. *The White Double* ROSE.

THIS Plant is multiply'd by *Slips* ſplit, with the Roots ſet four Inches into the Ground. It loves a ſtrong Soil, a ſunny Expoſition, and frequent Waterings.

It will not admit of Pruning, unleſs it be to clear it from old uſeleſs Wood, or that which is withered.

34. *The* Muſcadine, *or* Damask-ROSE.

THIS Shrub is perpetuated by *Suckers*, which grow out of it, planted in new Earth ; it requires a good Kitchin-Garden-Soil, much Sun, and frequent Waterings. It ſtands in no Fear of the Cold. The old Branches are to be prun'd every *Autumn*, within half a Foot of the Ground ; and from the Buds that remain, new Branches may ſprout out, which will produce the greater Quantity of Flowers.

35. INDIAN ROSE. *See* FRENCH MARYGOLD.

36. *The* GUILDER ROSE.

THIS Plant may be rais'd from *Suckers*, taken from about the old Root, either in *September* or *March*. It delights in a holding Soil ; and in *May* bears Bunches of *white* Bloſſoms, as big as a Tennis-Ball. It does not grow tall ; and it is difficult to reduce it to a regular Form : Therefore it is chiefly employ'd in Wilderneſſes, or other wild Places.

37. STRIP'D ROSES.

THE *ſtrip'd Roſe* is a Shrub that does not grow very tall ; and may be planted either in the open Ground or Boxes : It requires a Kitchen-Garden Soil, ſtrong and well ſifted. It is to be encreas'd Scutcheon-wiſe, either by Inoculating or Budding. Thoſe that are grafted Scutcheon-wiſe, never fail to bloſſom the next Year ; and thoſe that are budded, blow in *Autumn* the ſame Year : Whereas *ſtrip'd Roſe-Trees* that are increas'd by Plants with Roots, bear no Flowers in leſs than two or three Years.

Mr. *Carpenter* ſays, This *Roſe* is call'd *Roſa Munda*, and is a Species of the *Dwarf red Roſe*. It ſpawns much at the Root ; and the Colours are apt to run. And that we have two other Sorts of *Roſes*, equally valuable, one of which is call'd the *York* and *Lancaſter-Roſe*, and the other the *Apple-Roſe*.

Monſ. *Liger* ſays, All the other Sorts of *Roſes* ; *viz.* The *Carnation-Roſe*, the *pale Roſe*, the *Virginian-Roſe*, and the *ſingle Roſe*, of a *deep red* Colour ; require a good, ſtrong Earth and much Sun ; are to be planted either in *November*, *February*, or the Beginning of *March*, to the Depth of four Inches; and are to be prun'd in the *Spring*. The Roots are to be bared, to refreſh them with new Earth, which will make them bear finer Branches and Flowers.

Mr. *Mortimer* adviſes, That as ſoon as *Roſes* have done Blowing, to clip them with Shears, pretty cloſe to the Wood; and near the *Spring*, to cut each Branch again with the Pruning-Knife cloſe to the Leaf; and to take away Bud and all, to bring the Tree into a handſome Form. That none of them be ſuffer'd to grow higher than a Yard and half, except the *Muſk-Roſes*, which will not bear well, except againſt a Wall, Pale, or Houſe-Side; and muſt be ſuffered to grow to eight or nine Foot high.

38. ROSEMARY.

Various Sorts.] OF *Roſemary*, Mr. *Mortimer* reckons ſeveral Sorts; as the *Common*, the *Broad-leaf'd*, the *gilded*, and variouſly *ſtrip'd* with *yellow* as if *gilt*, the *Silver-Roſemary*, ſo call'd from its Silver-colour'd Leaves, and the *double-flower'd Roſemary*, whoſe Leaves are bigger, its Stalks ſtiffer, and bearing many *double pale blue* Flowers.

Soil, and Way of Propagation.] They love a *light*, *ſandy* Soil; but will accommodate themſelves to almoſt any Sort of Soil: And are increas'd either by *Seeds*, *Branches* or *Slips*, ſet in *April*, which quickly take Root, if they are Shoots of the laſt Year; but if they are older, will not grow.

It laſts ſeveral Years, if planted on a dry Ground; and hardly any Froſt will injure it: But if planted in a moiſt Ground, it ſeldom thrives; for if it has too much wet, it is very apt to ſuffer by the Froſt; and a froſty Night, after a wet Day, deſtroys more young, tender Fruits or Plants, than ten dry Froſts: Therefore it ought to be planted in the dryeſt Parts of a Garden, where it may be the moſt expos'd to the Sun; but Monſ. *Liger* ſays, in this Expoſure it muſt be often watered.

In Order to propagate it by *Slips*, Monſ. *Liger* adviſes, to chuſe the faireſt and ſtraiteſt Branches at the Foot of the Tree; to ſtrip the Leaves all off the Bottom, and all along the Part that is to be ſet in the Ground; and to plant them in *March*, and let them ſtand 'till *September*; and then you may plant them in Pots or Boxes, in an Earth compounded of half Hot-Bed Mould; and half Kitchin-Garden Soil ſifted.

You may let it grow 'till its Stalk is a Foot and half high; and then only mind its Head, which with a very little Aſſiſtance will form it ſelf into a Figure good enough.

Dr. *Agricola* tells us, he took *Roſemary*-Leaves, and did them up with *Mummy*, (as he did to *Orange*, *Lemon*, *Laurel*-Leaves, &c. the Method of which you may ſee under their proper Article cles) and planted them, and they did ſtrike Root, and grow.

39. RUE.

MR. *Bradley* ſays, There are two Sorts of *Rue* found in *Engliſh* Gardens; but the chief Difference conſiſts only in the Colour of their Leaves; the one being of a *plain green*, and the other variegated with a *Cream*-Colour.

This Plant delights in a *light* Soil, and ſhady Places; is increas'd either by its *Seed*, which is of a *black* Colour and rugged; but it is moſt eaſily and moſt uſually increas'd by *Layers* and *Slips* ſet in *April.*

It makes pretty Borders for Flowers, being cloſely clipt.

40. RUGOSE.

RUGOSE ſignifies full of Wrinkles.

41. RUGOSITY.

RUGOSITY is Wrinkledneſs, or Fulneſs of Wrinkles.

42. RURAL.

RURAL, belonging to the Country.

SA

1. SAFFRON FLOWER, *or* CROCUS. *See* CROCUS.

Deſcription.] MONS. *Liger* thus deſcribes it. The Plant from its Bulb ſhoots forth long narrow Leaves; out of the Middle of which riſes a Stem, and at the End of that grows a Flower like a *Lily* in Shape, divided into ſix Parts. In the Middle of the Flower riſes a Chive divided into three Borders, or Strings, and cut in the form of a Cock's Comb; this Chive is the *Saffron*, and the Cup becomes afterwards a Fruit of an oblique Figure, and raiſed three Corner-wiſe, and divided into three Cells, fill'd with roundiſh Seeds.

Different Kinds.] He ſays, that there are two Sorts of *Crocus's*, the *Spring Crocus* and the *Autumn Crocus*; ſome of which have *blue* Flowers, ſome *yellow*, ſome *white*, and ſome of them of a mixt Colour; ſome of them have *double* Flowers, and ſome *ſingle* Flowers; and ſome of them have but two Flowers; ſome have narrow Leaves, and ſome of them have broad Leaves.

The true *Crocus* is that which grows in *Autumn*, whoſe Flowers are commonly of a *red purple* Colour, and of a pleaſant

Scent. This Sort is in great Requeſt for the Beauty of its *Stamina*, whereas the Field *Crocus's* are cultivated in Gardens for nothing but Shew.

Way of multiplying.] This Plant is increaſed rather by the *Bulbs* than *Seed*, becauſe the increaſing them by *Seed* is tedious, and beſides the Plant produces *Suckers* enough for that Purpoſe.

Soil.] This Plant loves a pretty ſubſtantial *Soil*, neither too fat nor too lean, and a ſunny Expoſure.

The Time of diſplanting the *Bulbs* is in *Autumn*, when their Flowers are gone. When you have taken the *Bulbs* out of the Ground, lay them in ſome airy Shady Place, three Weeks before you replant them.

Some diſplant the *Crocus* in *March*, and leave them in the Air till *Autumn*, and then replant them; but they are to expect no Flowers till the Year following.

You may let them ſtand three Years without tranſplanting them, and after that take away all the *Suckers*, they have produced.

When the Flower is blown, the *Stamina* which grows in the Middle, which is the *Saffron*, is to be gathered early in the Morning, or about Sun-ſet in the Evening, holding a *white* Paper or linen Cloth to catch them in while it is doing.

Mr. *Bradley* has favoured us with a more particular Account of the Cultivation of the *Saffron Crocus* to the Purpoſe following.

The *Saffron Crocus* has a bulbous Root like the *Spring Crocus*, but much larger; the Flower is in moſt Things like the *Crocus* Flower, and of a *blue purpleiſh* Colour; but the Times of bloſſoming of the *Saffron* and *Crocus* are different; for the *common Crocus* appears in the *Spring*, and the *Saffron Flower* riſes in *Autumn*: The Leaves of them both are pretty much alike in Form, but thoſe of the *Saffron* are of a deeper *green* Colour, and larger than thoſe of the *Spring Crocus*.

The Piſtils of the *Saffron Flower*, which are the Parts only us'd in the Shops, muſt be gathered early in the Morning, while they are the moſt prominent, for when the Sun begins to influence them, they ſhrink into leſs than their firſt Subſtance, and almoſt retire under Ground: And the *Spring Crocus* does the ſame as ſoon as the Flower comes to open by the Warmth of the Sun.

As to the *Soil*, he ſays, it will proſper well enough in almoſt every Kind of *Soil*, except the Stiffer Sort of Clay.

Saffron Walden in *Eſſex*, was once one of the chief Markets for it, and the Ground there where it grew was a chalky Loam, but of that Sort which was moſt eaſily broken: In other Places there was a Coat of light Earth over the Chalk, about three or four Inches thick, which is depth enough for *Saffron* Roots: In other Places ſome grew on common Heath Ground, where the Surface ha been burnt, and turn'd in by a common Plough: And this he ſays, was no ways inferior in Quantity or Quality to that which grew about *Walden* and *Cambridge*.

Of planting Saffron.] As to the Manner of planting *Saffron*, the Ground muſt firſt be well prepared with the Plough; and is to be drawn into Ranges, like Furrows with a Sort of a large Hough, twelve or eighteen Inches broad, according as the Ground is in Quality ſtiffer, lighter, or more ſandy. When one Range is made, the *Saffron* Roots are to be laid into it about three Inches diſtant one from another; then drawing another Range, and filling up the firſt with the ſame Inſtrument; and with the Earth that came out of the ſecond, and ſo on, taking Care that the Depth of the Range or Furrows be all as equal as poſſible.

The Time of planting *Saffron Roots* is about *Midſummer*, for that is the Time that *Saffron Countries* generally take the Roots out of the Ground; and at that Time they may be bought in the Markets by the Buſhel.

But tho' this be the Cuſtom of the Country People, he ſays, he is ſure from Experience, that the *Saffron Roots* might as ſafely be taken up as ſoon as the Leaves are dead, as to let them lie in the Ground a Fortnight or three Weeks after; for the Deadneſs, or falling off of the Leaves of any *Plant*, ſhews its natural Diſpoſition to reſt from Growth, and then there is no Occaſion for any Aſſiſtance from the Earth, till the time comes for its Vegetation.

But when the Ground is planted, perhaps ſome few Flowers will appear the *September* following, naked, or without any *green* Leaves; and about the End of *September* or beginning of *October*, the *green* Leaves will appear, and ſhoot out into a good Length; then the Weeds are to be houghed up with a Hough about three Inches wide; but the Leaves which hold their *Greenneſs* all the *Winter*, and Part of the *Spring*, muſt not be diſturb'd, for that weakens the Root.

The next Year after planting, a third or fourth Part of what they account a full Crop, may be expected; and this Year, as ſoon as the *green* Leaves are quite decayed, the whole Ground muſt be clean'd with an Hough, and that will very much help the Roots.

With this Management the third or fourth Year you may expect full Crops: But then the Roots and their Off-ſpring are to be taken out of the Ground in order to make freſh Plantations; And an Acre of *Saffron Roots*, of this ſtanding, will plant about three Acres and an half.

Hares being great lovers of *Saffron*, they fence in their *Saffron* Grounds with Hurdles, or ſome other good Fence to keep them out.

When the *Saffron* comes to flower, the Bloſſoms muſt be ga-

gathered very early in the Morning, becauſe the *Stile* or *Piſtillum*, which is the pure *Saffron*, ſhrinks at the Approach of the Sun; therefore while it laſts in the Flower, a great many Hands are employed every Morning to pick it.

As the *Saffron* is gathered it is put between Sheets of *white* Paper, and dried in little Kilns, that they have for that Purpoſe, over a fire of *Charcoal*.

The Method of drying it may be learned at *Littlebury* near *Walden* in *Eſſex*; for there is ſo much art in it, that *Saffron* is five or ten Shillings a Pound the better for that only.

About three Pounds of freſh *Saffron* will make one Pound dry, and ſometimes the Crop of an Acre for one Year has amounted to near eighteen Pound, but ten Pound an Acre is very common.

He ſays, he is apt to believe that there may be good *Saffron* gathered fron the *blue Spring Crocus:* there being little, or no difference, in the Flowers of the one and the other, and if ſo, the Spring will bear a tolerable Crop the firſt Year of planting; and then the Crop would be much more certain, and the Culture more eaſy.

In dear Years it has been ſold for more than five Pound *per* Pound Weight.

2. SAGE.

THERE are ſeveral Sorts of *Sage*. Mr. *Mortimer* reckons up the *Red*, the *green*, the *Small* and *Variegated*. Mr. *Bradley*, the *Red Sage*, the *Tea Sage*, or *Sage of Virtue*, and the *Wormwood Sage*. They are all raiſed from *Slips* taken from the Root in the Beginning of *April*, and planted at the Diſtance of a Foot each from other. The tender Tops of the Leaves, but eſpecially the Flowers ſhould be ſparingly cropp'd, yet not ſo as to ſuffer it to be too predominant.

He ſays. that the *Sage of Virtue* ſhould be cut for drying when it is full of young Shoots, becauſe it is only thoſe that are fit to make Tea of: They ſhould be gathered in a dry Day about Noon, and laid up to dry in the Shade.

He ſays, he has heard, that *Wormwood Sage* is preferable to *Sage of Virtue*, is not only more grateful to the Stomach, but makes a pleaſanter Liquor.

3. SAGITTA.

SAGITTA is the upper Part of any Cyon or Sprig of a Tree.

4. SALINE.

SALINE ſignifies Salt, briniſh.

5. SALLOW.

THE *Sallow* is propagated by *Cuttings* ſtuck in the Ground, or large Truncheons of eight or ten Foot long, or by *Layers*. Delights in a moiſt Soil, but will grow on the drieſt Sand;

is to be lopp'd or tranſplanted in *February*, is managed as the *Willow* or *Withy*, which ſee.

Mr. *Cook* ſays there are three common Sorts of *Sallows*, all of which love a moiſt, hollow Ground; but that with the round Leaf will grow on Banks, as well as Hedges; for if you ſet Stakes of them they will take Root.

The other two grow beſt on mooriſh Ground, and will grow much of *Cuttings*, and may be increaſed well by *Layers*. They may ſome Years be rais'd by Seed, but the Seed is not good all Years.

He has rais'd many of them from Seeds in the downy Subſtance; but they are ſo eaſily multiplied by *Cuttings* and *Layers*, that there needs not be the Trouble of raiſing them from Seed.

Mr. *Evelyn* ſays, *Figs* and *Mulberries* may be rais'd on them, and that they will thrive exceedingly.

6. SALSIFY, *or* GOATS-BEARD.

MR. *Mortimer* ſays, the common Sort is multiplied by *Seed*, which is almoſt like in all Things to *Scorzonera*, except its Colour, which is a little *greyer*, of a very long Oval Figure, as if it were ſo many Cods, all over ſtreak'd; and as it were engraven in the Spaces between the Streaks, which are pretty ſharp pointed toward the End.

7. *SPANISH* SALSIFY, *ſee* SCORZONERA.

8. SALT.

MR. *Cook* having treated of Pigeons Dung, as being good for cold Land, gives this Reaſon, that it is hotter and ſalter than any other Dung that he knows, it being the Nature of Pigeons to eat Salt, and to go to the Sea ſide early in the Mornings, to pick up Salt, which the Heat of the Sun makes by drying up the ſalt Water, and leaving the Salt upon the Sand.

This Reaſon he gives, that Salt is good for cold Lands is, that it is the Nature of Salt, that the drier and hotter it is kept, the more it keeps its own Body, and does not turn to Water, and when it ſtands in a cold moiſt Place, then in a little Time it diſſolves to Water, and when it is turned to Water, then it is fit for the Nouriſhment and feeding of *Seeds*, eſpecially Annuals.

The Reaſon why Salt, *viz.* ſalt Water is a Feeder of Plants or Seeds, is, that he has often obſerv'd, that Salt falling on a Board, &c. will be long a drying; and if it has been dryed by Heat, Dews or Rain will make it moiſt again, and then it ſteams forth; and that is it which nouriſhes all Plants: But if it be upon a hot and dry Ground, late in the Spring, and dry Weather comes, then it does not, nor cannot yield its Steam or Fume.

He adds, that he remembers, that the Sea having broken into his Father's Marſh in *Lincolnſhire*, the next Summer proving dry, all the Graſs was clearly burnt up, that they thought it had been quite kill'd, and ſo it appear'd: But the next Summer proving wet, they had a little Graſs towards the latter End ; and the third Summer Graſs enough ; but the fourth, and many Years after, Graſs in Abundance.

By which it appeared, that the Ground was ſtupified with too much of the Salt Water ; but after the too great Strength of it was allay'd by the Rain, then the Graſs could well digeſt the gentle Fume.

Dr. *Grew* ſuppoſes that the chief governing Principle in the Juices of Plants is the *ſaline*, or *Salt*, which *ſaline Principle* is to be underſtood as a general Term. The *vegetable Salts* ſeem to be four, *viz.* the *nitrous*, the *acid*, the *alkaline*, and the *marine*.

He obſerves, that the *nitrous* Salts ſeem by Nature to be aſſigned chiefly to the Growth of Plants ; and the other three Salts are exhibited by the ſeveral Ways of reſolving the Principles of a Plant.

As to the preſerving of Seeds, or bringing Seeds from foreign Countries, Mr. *Bradley* mentions a Method communicated to him by a Gentleman, as follows.

That when the Seeds have been gathered, and dry'd as well as the Warmth, or Air of the Place can do, or a warm Pocket will do in three or four Days, they ſhould be put into a Glaſs Bottle, or ſome glaz'd Veſſel, and ſtopp'd up very cloſe, and rather with a Stopple of the ſame, than with a Cork, becauſe Cork is apt to rot by Change of Air. This Stopple ſhould be well done over with Beez Wax and Roſin, or Pitch ; then this Bottle, or Veſſel ſhould be put into another glaz'd Veſſel, and fill'd up on every Part with common Salt, Bottom, Sides and Top, or Stopple ; this being done, he thinks it impoſſible, for any of the Seeds to be injured in their Paſſage thro' different Climates, for that no Sort of Inſect can live in a Body of common Salt.

This he ſays he approves on as a very proper Expedient, for that beſides the Salt will correct the extraordinary Heat of warmer Climates ; and that by its Fixation and Coldneſs, it is not to be ſuppoſed that the exceſſive Heat of the hotteſt Climates can penetrate through it ſo as to cauſe any conſiderable Decay in the Seed.

9. SAMPHIRE.

IS a Kind of *ſtony Parſley* multiplied only by *Seeds*, which is more long than round, and pretty big of a *greeniſh grey* Colour, ſtrip'd on the Back and Belly, and in Shape reſembling a lute. It being by Nature very delicate, requires to be planted at the Sides of Walls expos'd to the *South Eaſt* ; the open Air and ſharp Cold being very pernicious to it. It is uſually ſown in ſome Pot or Tub, filled with Mould, or elſe on ſome Side

Bank toward the *South* and *Eaſt*, and that in *March* or *April*, and is afterwards tranſplanted into thoſe Places above-mentioned.

Mr. *Mortimer* ſays, the *French* Seed of this Plant is better than ours.

10. SAND.

MR. *Mortimer* ſays, *ſandy* and *gravelly* Grounds do eaſily admit of Heat and Moiſture, for which they are not much the better, becauſe they let it paſs too ſoon, and ſo contract no Ligature; or retain it too long, eſpecially where the Bottom is of *Clay*; and by that Means it either parches or chills too much, and produces nothing but *Moſs* and cancrous Infirmities; but if it happens the Sand has a Surface of more genial, better Mould than ordinary, and a Bottom of Gravel or looſe Stone, tho' it do not hold the Water, it may produce a forward, ſweet Graſs; and tho' it may be ſubject to burn, yet it quickly recovers itſelf with the leaſt Rain.

He ſays, There are ſeveral ſorts of pure, ſheer *Sand*; as, *black*, *white*, *bluiſh*, *red*, *yellow*, harſher and milder, and ſome that is very light, being but meer Duſt; and alſo the *Aſh*-colour'd, *black* and *grey*: The firſt is the moſt inſipid of any, and is often found in heathy Commons.

Monſ. *Quintiney* ſays, Thoſe Grounds that are moderately *dry, light* and ſandy, are more *diſpos'd to* produce the Novelties of the *Spring*, than the ſtrong, heavy, moiſt and fat Lands.

Mr. *Bradley* ſays, That upon the Foot of the excellent Experiments of Mr. *Laurence*, and his recommending the Uſe of untry'd Earth, to mend ſuch Lands as have been worn out, He has choſen to mix the light Soils with the ſtiff ones; ſuppoſing that the ſandy Soils will open the Parts of the ſtronger Lands; and that Clays or ſuch as are cloſe, or are call'd fat Lands, will help to nouriſh and inrich the Sand, which is of itſelf too light to hold ſufficient Moiſture for the Support of Vegetation, or the Growth of Plants.

Mr. *Cook* ſays, *Sea-Sand* is a very good Compoſt for Ground, eſpecially for ſtiff Ground; for there it doth the two main Parts to Plants, or any Seed or Tree, that is, it makes Way for the Tree or Seed to root in ſtiff Ground, and makes a Fume to feed it; but this is too nimble for the Seeds of Trees, (unleſs a very little) for Reaſons he gives.

Mr. *Bradley* ſays, Sand is apt to puſh the Plants that grow upon it early in the *Spring*, and make them germinate near a Month ſooner than thoſe that grow upon Clay; becauſe the Salts in the Sand are at full Liberty to be raiſed and put into Motion, upon the leaſt Approach of the Warmth of the Sun; but then as they are haſty, they are ſoon exhaled and loſt.

But Sand has Plants that are natural to it, and delight ſo in it, that they will ſcarce proſper in any other Earth.

He tells us of Hot-beds now uſ'd in *Holland*, made of *Sand*, which are not ſo apt to raiſe unwholſome Damps, as thoſe that are made of common Horſe-Dung: But tho' he did not then know how they were compos'd; yet he is of Opinion, that Beds might be made to anſwer the End of Gardening, in the Manner following:

Firſt, raiſe a Floor two Foot above the Ground, the ſame Length and Breadth as a Square of Lights may ſtand upon; lay it with ten Inches or Foot Square Tiles; make a Stove underneath this Floor, and a Flue from it, ſo diſpos'd as to give as equal an Heat as poſſible to the whole Floor; raiſe a Wall two Foot high from the Floor, encompaſſing the four Sides: Fill this hollow with the coarſeſt Sort of Sand, that which is call'd ſcowring Sand, or drift Sand, or ſuch as is found upon the Sea-ſhore.

In this Stove make a little Blaze with Bean-ſtalks, or ſome other Matter of ſmall Value, to warm the Floor; and by this Means the Sand will be heated in Proportion to the Quantity of the Fire, and will retain the Warmth for ſome Time: And the Heat may be judged of, by a Thermometer, that has been regulated for the Degrees of Heat and Cold, that ſome Plants require.

In ſuch a Bed of Sand, thus heated, he is of Opinion, we might *ſet Pots with* Seeds or Plants, and with the ſame Advantage as in common Hot-beds; for that the Dung in a Hot-bed ought to have no other Relation in the bringing up a Plant, than what barely proceeds from a common Hot-bed.

But if there be other Occaſion for Sand-Heat, than the plunging of Pots will admit of; then he thinks the Method propos'd by Mr. *Laurence* may be of Service; which is, to make a Frame with Wire at the Bottom, ſo cloſely knit together, that it may hold fine Mould, and yet allow Paſſage for Water, which may be remov'd and ſhifted from Bed to Bed, when the Heat begins to fail; and ſo not give the Plants any Check in their Growth. Such a Sort of Frame, he ſuppoſes, may be of Uſe in a Sand-Bed; tho' there may be but little Occaſion for it, becauſe the Heat of the Sand may always be renewed by the Fire. But chiefly, becauſe if the Sand ſhould at any Time be made too hot, the Frame, Earth, and all the Plants may be rais'd to ſuch a Degree above the Sand, as may moderate the Heat of it: But this Sort of Frame muſt be cover'd with Glaſs like a common Frame.

He alſo informs us of an ingenious Contrivance of Mr. *Samuel Molineux*, which he thinks to be of great Uſe in Gardening, and will alſo take up but very little Room. This is,

To make a Frame of Wood in the Manner of a Hot-bed Frame, ſuppoſing it to be three Foot long, and two Foot over

wier

wier'd at the Bottom, with a Glaſs-Light to cover it, deep enough to hold a ſufficient Depth of Earth for the Nouriſhment of the Plants to be ſet in it. And then to procure a Box of the ſame Length and Breadth, about ten Inches deep; to fill it with Sand for the Frame to ſtand upon, the Box having a thin Iron-plate Bottom. Alſo to have, in the third Place, an Iron-Box, of the ſame Dimenſions as the Box of Sand, deep enough for a Lamp to burn in it; and at the End of this Iron Box there ſhould be an Outlet for the Smoak, which may be us'd as Occaſion requires.

The Oil, which may be burnt in this Lamp, may be bought for about Six-pence a Quart, which may ſerve for eight Times, each eighth Part burning about twelve Hours: And the Lamp needs not be kept burning continually; for that ſuch a Body of Sand being once heated, will keep warm for eight or ten Hours; and ſo a Quart of Oil may ſerve about a Fortnight.

To regulate this Matter, a Thermometer may be plac'd in the Earth, to direct, when the Lamp ſhould burn, and when it ſhould be put out: And a little Experience will direct to the juſt Quantity of Oil neceſſary to be expended.

He is of Opinion, That by this Invention, Heat may be regulated to any Degree we would have it; for if it be great, it may be moderated by adding more *Sand; and* if it be too ſmall, ſome of the Sand may be taken away.

The Iron-Box, in which the Lamp is to be ſet, may be made to move upon Wheels or Rollers. The Box of Sand is to be ſet upon that; and the Frame of Earth upon that: And the Iron-Plate at the Bottom of the Box of Sand, may probably ſerve for the Top of the Iron Lamp-Box.

This Sort of Hot-bed has this Conveniency, of being mov'd from Place to Place, ſo that it may ſtand Abroad in fair Weather, and be drawn into the Green-houſe in very ſharp, froſty Weather.

He thinks, That it is beſt that it always ſtand with its Face to the *South*, and not to ſhift it to the *Eaſt* and *Weſt* to get a little more Sun; becauſe it is the Nature of Plants always to ſtand ſtill, and not to change their Aſpect from what they firſt had.

11. SAP.

DR. *Agricola* tells us, That there are found in Trees, all Sorts of *Veins* and *Arteries*, which traverſe all their Parts: The firſt are deſign'd to carry the *Sap* through all the *Branches*; and the others to return it back to the *Root*: But it is very difficult to find out the firſt Principle or Heart, from whence they have their Riſe. However, if the Place, where the Pineal Gland lies, be examin'd, that is, the Place where the *Stem* joins with the *Root*, there will be a Kind of Sinuoſity found, with a ſmall Spot or Point: And it is probable, that the Principle of the *Arteries* and *Veins* may be found there; for from thence proceed two great *Ramifications*, ſhooting out on both Sides, one of which runs up the *Trunk*, and the other deſcends into the *Root*, and ſpread themſelves every where. There are two Sorts of *Veſſels*, or different Kinds of *Veins*; ſome of the largeſt go ſtraitening themſelves; and the others which are narrower, grow larger.

Theſe, like the Nerves, ſpread through all the Parts of a Tree, and convey the nouriſhing *Sap* from the Ventricles to all the Parts; and then paſſing by a *Gland* or *Lymphatick Veſſel*, the reſt of the Liquor turns back again through the *Veins*.

It is from this *Sap* that the Nerves alſo draw their Nouriſhment. It is plain, that all Trees have *Nerves*; nor can it be denied, that they have alſo their *Cavities*, wherein there is ſome Share of *Sap*. The *Sap-Conduits* are found every where in very great Numbers, as is found on the Diſſection of the *Stem*: The *Sap* which is found in them is like clear Water; and when the Tree is wounded, runs from them plentifully, as may be ſeen in *Birch* and other Trees.

He ſays, in another Place, Tho' the Seed of a Tree, while it is not impregnated, has no Power of Vegetation; yet ſince the *Embryo* of a Tree, even before it is fertiliz'd, is fed and maintain'd, it may thence eaſily be *concluded, That this* cannot be without a nouriſhing *Sap*. The *Seed* has in itſelf enough of this to ſupply it, 'till it is fertiliz'd or hatch'd in the Bowels of the Earth; but if it be kept too long out of the Ground, the *Sap* conſumes and dries up, and the *Seed-Bud* is ſpoil'd, and becomes unfit for Vegetation.

But as ſoon as the *Seed-Bud* (or that he calls the *Plantula*) begins to vegetate, by Means of the vegetative Principle, then it begins to draw Nouriſhment, and grow vigorouſly.

The inward and hidden Operation proceeds from nothing elſe but the Reception of the nouriſhing *Sap*.

The Nouriſhment and Growth of a Tree conſiſts in a regular and uniform Reception of the nouriſhing *Juice*. The *Root*, which is the Mouth of a Tree, draws the *Sap* or *Juice* from the Earth, and conveys it to the *Trunk*, where it enters the *Cavities* of the Tree, which may be call'd the *Oeſophagus* and *Entrails* of the *Tree*. When it has been there ſufficiently digeſted, it diſtributes it ſelf by different *Veins* into all the Parts.

From this *Sap*, the *Glands*, *Lymphatick Veſſels*, and the *Nerves*, attract to themſelves ſuch Nouriſhment as they reſpectively require; and the Remainder returns back to the other Parts.

And ſince the moſt ſubtile and pureſt *Juice* is found in the *Nerves*, and theſe are plac'd the moſt conveniently for nouriſhing the other Parts; therefore all the other Parts are adjuſted and proportioned to them.

This nouriſhing *Sap* of a *Tree*, is a *Heterogeneous Juice*, compos'd of divers Things; ſuch as Parts which are *aqueous*, *ſaline*, *ſulphureous*, *aromatick*, and *Terrene*.

Theſe Particles are mix'd and proportion'd one with another after different Manners; and ſo variouſly combin'd, that it cannot well be deſcrib'd.

Tho' every Tree has in it ſelf ſomething of thoſe before-mention'd Parts; yet one has Occaſion for more, and another has Occaſion for leſs of this or that, according to their particular Natures, and the different Modification of their Bodies.

Trees, that are of a watery Conſtitution, require a Soil of the ſame Nature, that they may draw abundance of Moiſture, or they will not thrive.

Others that are of a dry Conſtitution, which are full of *ſulphureous*, *Oleaginous* and *Balſamick* Parts, if they are planted in Ground abounding with ſuch-like Parts, they will not only draw great Quantities of them to their Nouriſhment, but will grow and proſper in Proportion.

But thoſe Trees that have more *ſaline* Parts, and require Particles of *volatile Salts*, they will require ſuch an Earth as has thoſe Parts, in order to grow and proſper as they ought.

Perhaps while Trees are growing, this *Sap* is drawn and diſtributed in greater abundance, than when they are only ſupply'd with *Sap* for their Nouriſhment; and then the *Veſſels* dilate, and are more extended, and ſwell the Trees 'till they have attained to their full Extent either of Height or Thickneſs, and then is drawn in a leſſer Quantity.

Of the Circulation of the Sap.] Mr. *Bradley* ſays, That Vegetation equally depends on the Order of Nature, in *Trees*, *Shrubs*, or *Herbaceous Plants*; their Principles being equally the ſame; that is, they all after the ſame Manner draw their Nouriſhment by the way of their *Roots*; and this Nouriſhment is convey'd into the *Stem*, *Branches*, *Leaves*, *Flowers* and *Fruit*, through proper Veſſels.

The Nature of Plants, he ſays, may be better underſtood, by drawing a Parallel between them and *Animals*.

By the Obſervations which have been made concerning the Structure of *Animal* Bodies, and the Structure of *Vegetables*, will aſcertain us, That Life, whether it be *Animal* or *Vegetable*, muſt be maintain'd by a due *Circulation* and *Diſtribution* of Juices in the Bodies they are to ſupport.

Meſ. *Bradley*, *Malpigius*, and Dr. *Grew*, have (by the Help of *Microſcopes*) diſcovered the ſeveral Veſſels and other Parts that compoſe a Plant. And he proceeds to explain, how the *Sap circulates* in the Veſſels of *Plants*, as the Blood does in the Bodies of *Animals*.

In Order to the better Underſtanding this new Syſtem, he gives a ſhort Deſcription of the *Veſſels* in *Plants*, and their Situation.

1. As to the *Roots*. The *Roots* of *Plants* are of a ſpungy Nature, fitted to admit into them thoſe humid Particles, that are fitted (in the Earth, by a certain Temperature of Air) to be received into their Pores: It is alſo obſervable, That the various Qualities of different *Plants* do chiefly depend on the different Size of the *Veſſels* and *Pores* which are in their *Roots*, by which they receive their ſeveral Nouriſhments.

2. The Wood of every Kind of Plant is compos'd of capillary Tubes, which run Parallel with each other, from the *Root* (upright) through the *Trunk*. The Cavities of them are ſo ſmall, that they are ſcarcely diſcernable by the natural Eye; except it be in a Piece of *Charcoal*, *Cane*, or *Oaken Board*.

Theſe Veſſels augment themſelves every Year: This may be perceiv'd by cutting a *Tree* horizontally; for then the Latitudinal Shootings, and the annual Addition of theſe Pipes may be diſcover'd: And for this Reaſon, the Trunks of Trees grow in their Circumference.

Theſe *Tubes* he calls *Arterial Veſſels*; for from theſe *Tubes* or *Arterial Veſſels* the *Sap* riſes from the *Root* in a fine Vapour; for the Cavities of them are ſo ſmall, that it is impoſſible they ſhould admit any Thing, the Parts of which are as large as thoſe of a Liquor.

3 The Paſſages or Pipes, thro' which the *Sap* returns downwards, are much opener than thoſe before-mention'd, and are capable of receiving a Liquor into them. Theſe Paſſages are plac'd immediately on the Outſide of the *Arterial Veſſels*, betwixt the Wood and the inner Bark, and lead directly down to the Covering of the *Root*. Theſe do the Office of *Veins*, and contain the liquid *Sap* that is to be perceived in *Plants* in the *Spring* and *Summer* Months.

4. The Bark of Trees is of a ſpungy Texture, and alſo correſponds with the *Pith*, by many little Strings which paſs between the *arterial Pipes*.

5. The *Pith* of the Trees is compoſed of ſmall tranſparent Globes, which are chained together after the manner that thoſe Bubbles are, which compoſe the Froth of any Liquor.

So that, in ſhort, a Plant is as it were an Alembick, which diſtils the Juices of the Earth.

When the *Root* of a Tree has ſuck'd in the Salts of the Earth, and has filled it ſelf with Juices proper for its Nouriſhment, then theſe Juices are put into Motion by Heat, *i. e.* they are cauſed to evaporate into Steams, as what is put into a Still will do, when it begins to warm; and as ſoon as the *Steam* or *Vapour* riſes from the *Root*, it is carried upwards by its own natural Quality to meet the Air, and then enters into the Mouths of the ſeveral *arterial Veſſels* of the Tree, and is paſſed up to the Top with a Force that is anſwerable to the Heat by which it is put into Motion. By this Means the minute Veſſels are opened, (by little and little, as it can force its Way) which Veſſels are roll'd up in *Buds*, and explain them by Degrees into Leaves.

But as every *Vapour* of this Kind will condenſe and thicken into a Water when it feels the Cold; ſo when the *Vapour* before mentioned, which riſes through the *arterial Veſſels*, arrives at the extreme Parts of them, *i. e.* the *Buds* of the *Tree*, it meets with Cold enough there to condenſe it into a *Liquor* as the *Vapour* does in a Still.

In this Form it does by its own Weight return to the *Root*, down thoſe *Veſſels*, which perform the Office of *Veins*, and which lie between the inner Bark and Wood; and as it paſſes by leaves ſuch Parts of its Juice, as the Texture of the Bark is capable of receiving, and does require for its Support.

As for the *Pith*, which has been accounted the principle Part of a Tree, he ſays, he takes the leſs notice of it, becauſe many *herbaceous Plants* have no Pith at all, and that he has ſeen the *Trunk* of large *Trees* without any *Pith*, which yet have kept on growing, and bearing Fruit, ſo that the order of *vegetation* may be explained without regarding the *Pith*.

As an Inſtance of the *Circulation* of the *Sap* in Plants, Mr. *Laurence* gives an Account of an Experiment of his, as to the *Jeſſamine*.

He ſays, he cannot but take notice what a noble Demonſtration the *yellow ſtrip'd Jeſſamine* has afforded of the certain *Circulation* of the *Sap* in a *Tree*, as the Blood in the Body of an Animal.

He propoſes a plain *Jeſſamine Tree*, which ſpreads it ſelf in two or three Branches from one common Stem near the Root. If you inoculate a *Bud* of a *yellow ſtrip'd Jeſſamine* into any of theſe Branches in *Auguſt*, and it abides there all the Winter, when the Tree begins to make its Shoots in Summer, you may perceive ſome of the Leaves here and there ting'd with *yellow*, even upon thoſe Branches which were not inoculated, till by Degrees, in the following Years, the whole Tree, even the very Wood of all the tender Branches will be beautifully ſtrip'd and dy'd with *green* and *yellow* intermixt.

It matters not whether the Branch be cut off above the Inoculation, to cauſe the *Bud* it ſelf to ſhoot; for it will have the ſame Effect of tinging by Degrees, the whole *Sap* of the *Tree*, as it paſſes by or through this *Bud*, and will communicate its Virtue to thoſe Branches that are moſt diſtant and oppoſite, altho' the *Bud* it ſelf ſhould not ſhoot out.

He adds, that he has ſeveral Times had Experience, that if a *Bud* does but live two or three Months, altho' it ſhould afterwards die or be wounded by any Accident, yet that it will have in that ſmall Time ſo communicated its Virtue to all the *Sap*, that the Tree will become intirely ſtrip'd. This Diſcovery, he ſays, does without Doubt prove the *Circulation* of the *Sap*.

Mr. *Bradley* ſays, That himſelf and ſeveral others have ſeveral Years ſince made the ſame Experiment; and from thence he took the firſt Hint of the *Motion* of the *Sap*.

He adds, That the *Motion* of the *Sap* continues in a Plant, as long as the Warmth of the Sun is able to keep it in a fluid State; but a *Winter*'s Cold condenſes or thickens it, and turns it into the Conſiſtency of a Gum; and when it is once thus ſtagnated, it cannot move any more, 'till it is rarified into its former liquid State by the Warmth of the ſucceeding *Spring*, or by ſome artificial Heat.

But then the former Vigour is renew'd, and it puſhes forth *Branches*, *Leaves*, *&c.* But it is not to be ſuppos'd, that it is only the melted *Sap*, which was thickened in the Tree, during the *Winter*-Seaſon, that performs the Office of *Germination*; for while the *Branches* have ſtood ſtill, the *Root* has not been idle; the *Root* has not loſt the Moiſture of the foregoing *Autumn*, to impregnate or furniſh it ſelf with proper *Salts* or *Nouriture*, which are to maintain the Tree: There is a Supply laid in, to furniſh Food for the *Summer*-Seaſon.

And whereas it has been a common Opinion, That the *Sap* returns to the *Root* in the *Winter*: In Confutation of it, he ſays, If it is ſo, how comes it, that thoſe Trees, that are cut down in *November* or *December*, do the following *Spring* put forth *Branches* and *Leaves*, altho' they have no *Root* or *Earth* to feed them?

Which makes it appear plain, That the *Sap* is by extreme Cold condenſed or thickened in the Tree, during its *circulative* Courſe, and continues in that gummy State 'till it is liquified by the Warmth of the *Spring*; and ſo long as there is Matter remaining in the *Trunk* ſufficient to furniſh them, the *Buds* are puſh'd forth by the Vapour which muſt then ariſe from it.

Not foreign to this Matter, Mr. *Cook* ſays; as to thoſe Trees that ſhed their Leaves, he takes the *Sap* (if the Weather be open) to be ſtill aſcending into the Head, altho' it be Mid-*Winter*: Tho' there does not ariſe enough of it to keep the Leaves on, nor to make it bud forth; yet it is plain that it keeps the Buds full and freſh, and encreaſes the Growth of the Tree; for that ſame pory Subſtance of a Tree, that is between every Annual Circle, is made by the *Winter*'s *Sap*; and by how much the *Winter* is the milder, the greater this will be; as is viſible in the *Aſh*, *Oak*, *Elm*, *&c.*

As for thoſe Trees which hold their Leaves, the Wood of them is cloſe and compact between the Annual Circles; and that is the Reaſon, that when they are bark'd round, they die ſo ſoon; Alſo the *Sap* of ſuch Trees, being of a Turpentine and clammy Subſtance, is the Cauſe that they hold their Leaves all the *Winter*, being (as it were) glued on by it; and it being once ſet, by Cold, it requires a pretty deal of Heat to make it thin, and put it into *Motion*; as it muſt be Froſt that ſets or ſtays the *Motion* of Water; but a little Cold will make *Pitch* or *Turpentine* ſtiff.

Mr. *Bradley* ſays, That ſince it is evident from what he has ſaid, *That there is a* Circulation *of the* Sap *in* Plants, *and alſo a proper Means to ſupply themſelves with Food*; It is worth while to conſider, Whether *Plants* in their ſeveral Kinds do not require different Sorts of Food, like various Kinds of *Animals*, which differ in their Diet. This, he ſays, has been ſo little obſerv'd by ſome of the greateſt Planters, that ſcarce one in five of their Plantations have given them Occaſion to boaſt.

Whereas, as ſeveral *Land-Animals* have their reſpective Diets; ſo *Terrene Plants* have their ſeveral Soils, from whence they draw their Nouriſhment.

Mr. *Switzer* ſays, That whereas it has been the common Opinion, that the *Sap* deſcends into the *Roots*, at the Termination of the Year, and there lies dormant all the *Winter*, 'till it is drawn up again by the Heat of the *Spring*: It has been obſerv'd, That if a Limb or Bough be taken in the Depth of the *Winter*, when the *Sap* might be thought to be in its grand Repoſe, and any Part of any Tree be cut off, and laid on the Fire, the *Sap* will run out at both Ends, by the Force of the Heat; which is a plain Demonſtration, that the *Sap* is not gone down into the *Roots*.

But beſides, it ought to be conſider'd, Whether the *Roots* are capable to contain the deſcending *Sap*; which are probably full enough already of the *Sap* that belongs to themſelves: As to the Proceſs of the *Sap* being ſtopt, that is eaſily accounted for, by the Coldneſs of the Air; for the *Sap* in moſt Trees being a thin Fluid, it is eaſily aſſail'd and ſtopt by the leaſt Declenſion of the Sun.

And that which makes it otherwiſe in *Hollies*, *Yews*, and other *Ever-greens*, is the Strength of the viſcous and other glutinous and gummy Qualities of their *Sap*, by which they retain their Leaves all the *Winter*: So that while other Kinds of Trees are more fragile and brittle, the *Sap* thin, and conſequently the Leaves deciduous upon the leaſt Approach of Cold in *Winter*: The Wood of *Ever-greens* is tough in its Nature; ſo that the Leaves adhere the firmer, being as it were ty'd on with Strings to the Boughs.

He adds, however plain it may appear againſt the Declenſion of the *Sap*, That he has ſeen an Inſtance in *Buckinghamſhire*, which helps to confirm that Opinion:

A *Jeſſamine*, which was grafted with a ſtrip'd one of the ſame Sort, about two or three Foot above the Ground; and ſome Years after, the ſame Stripes did not only appear above, but alſo in many Branches that were a conſiderable Way under the Grafting Place.

But this, he ſuppoſes, rather to proceed from a recoiling or retiring of the *Sap*, which is thinner in this Tree than in any other. And that it is plain, That it does thus retire or ſink towards the vital Principle, as the Blood in the Body of a frighted Animal retires towards the Heart. The Reaſon he gives, is, That the Tops of theſe Trees die more than thoſe of other Trees, by being left deſtitute of *Sap* in the *Winter*-Seaſon.

As to the *Circulation* of the *Sap* in Trees, as of the Blood in the Bodies of Animals, he ſays, he is as much to ſeek, in the Parity of Reaſon, why it ſhould be, as the Method by which it is effected. But it is certain, the natural Mechaniſm of the Body does require Extenſion (under which may be well accounted that ſmall Height to which the talleſt of Animals do attain) and ſo of Conſequence, the Blood is not employ'd about any other Service: But Trees require an unlimited Proceration ; and it is reaſonable to ſuppoſe, that Nature employs all her Force to that End.

And as for the Swelling or Extenſion of Trees, it is obvious, That it proceeds from the Effuſion of the *Sap* from the Heart of the Tree, through the Pores, which dilates and ſwells the whole inſenſibly, by accumulating Circle upon Circle; which are annual Gradations, that are plain *enough to be* ſeen, the Branch, Bough, or Trunk of a Tree being cut a-croſs.

And that it is obſerveable, That the Sun has a very great Influence, in that the annual Circles of that Side of the Tree which is next to the Sun are much larger than thoſe are, that are on the *North* Side of it.

That the *Sap* does *circulate*, appears from this remarkable Thing, which happened in Mr. *Fairchild*'s Garden, by the Budding or Inoculating ſome of a *Paſſion-Tree*, whoſe Leaves were ſpotted with *yellow*, into one of that Sort of *Paſſion-Tree* that bears the long Fruit ; for tho' the Boughs did not take, yet after they had been budded a Fortnight, the *yellow* Spots began to ſhew themſelves about three Foot above the Inoculation ; and in a little Time after that, the *yellow* Spots appear'd on a Shoot, which came out of the Ground from another Part of the Plant; which is a plain Proof of the *Sap*'s *Circulation*.

The ſame Perſon having grafted the *Ever-green Oak*, or *Ilex* of *Virginia*, upon the *common Oak*, the Leaves of the *common Oak*, which was the Stock, decay'd and fell off at the uſual Seaſon of the Year ; but the *Ever-green Oak*, which was the Cyon grafted upon it, held its Leaves, and continued ſhooting in the *Winter* ; ſo that when Trees drop their Leaves, the *Sap* keeps full in *Motion*, and is not gone into the *Root*, as ſome Perſons think.

Mr. Bradley ſays, He had once a Caſe of the like Nature, which he experienc'd in the *Lauro-Ceraſus*, or *common Laurel*, which he inoculated on the wild *black Cherry*; the Leaves of the *black Cherry* dropt about *September*; but the Buds of the *Laurel* ſhot out or ſprouted ſome Time after, and held *green* all the *Winter*.

A Confirmation of this is to be obſerv'd in the *Miſletoe*, which is both an *Ever-green*, and alſo grows and ripens its Fruit a long Time after the Tree it grows upon has ſhed its Leaves.

It is evident in the Trunks of *Elms* and other Trees, that are cut from their *Roots* in *Winter*, that the *Sap* of thoſe Trees which loſe their Leaves does not return to the *Root* to lodge there in *Winter*. For that, after they have been bored for Water-pipes many Months after their Fall, they make Shoots, and ſpring from every Joint, as if they had a Communication with the *Root*, which they could not have done, if the *Sap* had gone down to the *Root* at the Fall of the Leaf.

Mr. *Fairchild* alſo has made another Experiment, by cutting the Shoot of a *Fig-Tree* or a *Mulberry-Tree*, in the *Winter*-Seaſon, as well as in the *Summer*; in which caſe the *Sap* always runs out at both Ends, which is a plain Proof, that there are not only Veſſels for the Sap to riſe through from the *Root*, but alſo for the Return of it: The one flowing with that which preceeds immediately from the Fountain through the Wood-Veſſels; and the other End of Branches exhibiting the returning *Sap*. This Experiment was ſhewn by him before the *Royal-Society*, in the *Winter*-Time; and is a Confirmation of the *Circulation* of the *Sap*.

He adds, That thinking of ſome Obſervations he had made in his own Garden, relating to the *Circulation* of *Sap*, &c. he inarch'd ſome large *Pear-Trees* into young Stocks, and had left them intirely depending upon the Stocks: When they had taken, having ſaw'd one of the old Trees from its original *Root*, he plainly perceiv'd there was as regular a *Circulation* of *Juices* there, as in Animal Bodies, by the good Growth of every Part of the old Tree, which had no other Nouriſhment than from the young Stocks it was inarch'd into.

As to ſome Perſons, who would know how long *Circulation* is performing; Mr. *Bradley* gives an Anſwer to the Purpoſe following: That they ought to underſtand, that the *Motion* of the *Juices* is conſtant; and that whatſoever hinders it, or quickens it beyond its conſtant Courſe, tends to weaken the Plants; becauſe the Secretions then are not rightly made; and beſides, the *Motion* of the *Juices* is not alike in every Plant, being in ſome ſlower, and in others quicker. As the *Circulation* of the *Blood* in *Animals* differs, and is not perform'd with the ſame Rapidity in all, that it is in ſome.

As to the Queſtion, How long the infected Matter inoculated in Plants will be before it ſhews it ſelf in the remote Parts of the Plant. He anſwers, that it is a Parallel with the Caſe of inoculating the Small-Pox in human Bodies, the Effect of which Operation is either ſooner or later, according as the Body is in more or leſs Vigour, when Inoculation is made, or from the Strength of the Infection inoculated, which ſometimes is not ſtrong enough to affect the whole Body of the Juices; and if ſo, either does not appear at all, or very late, and is ſometimes three, four, five, ſix or ten Days before it has diſperſed it ſelf over the whole Body, and infected the Blood enough to ſhew it ſelf: So it is in Plants, as appears from the *Paſſion-Tree*, before-mentioned, that it was a Fortnight before the *yellow* Spots appeared, and in ſome Plants it will be longer.

It is worth taking notice of, that the *yellow* Spots firſt began to ſhew themſelves in the new Branches, which, as it appears, are of very quick Growth, and ſhoot above three Inches and a half in a Day, as he has experienced, having meaſured one Shoot of a *Paſſion-Tree*, which from the Beginning of *May* to the End of *September* had grown thirty two Foot in Length; and he finds that *Variegations*, after Inoculations, ſhew themſelves ſooneſt in thoſe Plants that are quick Growers.

Mr. *Bradley* anſwers to ſome Objections that have been made againſt the *Circulation* of the *Sap*, ſays, that ſome of his *Readers*, upon the Article of *Tulips*, which he had treated on, *do totally* deny that there is ſuch a Thing as *Circulation* of *Sap* in Plants: But as it appears they are none of the firſt Rank among the learned, and by their Objections it appears that they do not well know what the Word *Circulation* Means, and much leſs how it is performed; he therefore being very ready and willing to take any Opportunity to ſet them to rights, anſwers,

That *Circulation* ſignifies a going or ſearching about; and that when the *Circulation* of Blood in Animal Bodies is ſpoken of, there is meant by it the going about of the Blood through all the Parts of thoſe Bodies from its Fountain, and returning of it thither again; and that whenever the Motion of the Blood ſtops in theſe Bodies, they die.

And that in order to preſerve Life in *Animal* Bodies, the Blood ſhould continually move through the Veſſels, and their ſeveral Branches and Ramifications; and that it ſhould, in the ſeveral Parts of the Body, leave ſuch Juices as are neceſſary for the Nouriſhment and Support of each Particular; and when it paſſes by its Fountain, and renews its former Vigour, ſhould take in a freſh Supply of wholeſome Nouriſhment, to make good what it has loſt in its Courſe, and to ſupply the ſame Parts as it paſſes by them, as it did before.

But this Motion of the Blood in Animal Bodies is not in ſtrait Lines upwards and downwards, but by a great Number of Turnings and Windings, correſponding to every Part of the Body, ſo that the Blood in its Motion about the Body does not neglect any Part of it.

A ready Proof of the *Circulation* of the *Sap* may be had from the great *Garden Spurge*, of which if you cut off a little Shoot, the wounded Veſſels in the Stalk will immediately emit ſo large a Quantity of milky Juice, that it will continue dropping for near two Minutes, till it is ſo thickened by the Sun and Air, that the Mouths of the wounded Veſſels are ſtopped with it; and it appears plain in the Leaves of this Plant, even without the Aſſiſtance of a Microſcope, that this *Sap* flows through Veſſels which ariſe from the Root, and have a Correſpondence with others which return; but eſpecially if a Leaf of it be cut acroſs with Sciſſars, the Milk will immediately appear at the Mouths of the wounded Veſſels.

The *Dog's Bane* Tribe, or *Apocinum*, which has milky Juices, will alſo ſhew the ſame Thing, eſpecially ſuch of them as have the largeſt Leaves, and are the quickeſt Growers. And Mr. *Bradley* is of Opinion, that ſome of them have Leaves ſo tranſparent, that the Milk may be diſcerned *circulating* thro' them, as the Blood is diſcerned circulating thro' the webb'd Part of the Foot of a Frog, or the Tail of a Fiſh: But then the Leaf, which is thus examined, muſt be growing on the Plant, during the Time the Obſervation is making; and the Microſcope muſt be ſo fixed in ſome Frame as to be kept ſteady; there may be a Lamp alſo made uſe of to help the Diſcovery.

Again you may eaſily obſerve the Veſſels that ſerve to convey this Juice through the Leaves of the Plants, on the Back of the Leaf of a *Fig-Tree*, where you will find them to be all branch'd into one another; and that what *Sap* flows through the one, correſponds with all the reſt; ſo that the Juice which comes into the Veſſels in the Leaf through ſome of the Veſſels or Pipes in the Foot Stalks, does *circulate* through all the Veſſels in the Leaf, as well downwards as upwards, as will be demonſtrated by the following Experiment.

If you cut or ſtamp a ſmall Hole in the Leaf, between any two of the capital Veſſels, you will ſee the *white Sap* flow from the wounded Veſſels on one Side, or about half the Circumference of the Hole, that you have cut; but it will but very rarely iſſue from the other Veſſels that are wounded, becauſe the Communication has been broken: But if you make ſeveral of theſe ſmall Holes in a Leaf, without cutting the larger Veſſels, you will find the Veſſels in ſome fling out Juice towards the Root of the Leaf, and ſome flowing with Juices from the Foot Stalk, towards the upper Part of the Leaf, ſo that at the ſame Time the *Sap* is running through all the Branches of the Veſſels, whether up or down; and the Plant by receiving into all its Parts ſuch

Share of the *circulating* Juices, as each is appointed to receive, is encreaſed in Bulk.

It is his Opinion, that the Courſe of the *Sap* may be ſtopped by Ligatures, and ſo the Paſſage of the *Sap* into any Part may be prevented; which to him is a Demonſtration, that in Plants the Motion of the Juices is throughout the Whole, or that they *circulate* about it as the Blood does in animal Bodies, and not (as ſome Gardeners have ſuppoſed,) only up and down in ſtrait Lines.

And though there are indeed ſtrait upright Veſſels in the woody Part of the Trees through which he ſuppoſes the *Sap* has a Paſſage, yet theſe Veſſels do no longer continue ſtrait than till they reach to a Bud; but when they come to it, they branch forth and enter the Bud to ſerve it with Nouriſhment, and to feed it till it is explained and opened; and when they have perfored this, they branch again into the ſeveral Buds that are in that Branch, and ſo proceed till the Tree is fully perfected.

But then it ought alſo to be obſerved, that the Veſſels he ſpeaks of paſſing through the Wood do ſpread themſelves, and are branched forth into Roots, and are inoculated into others; ſo that there are *Sap* Veſſels quite throughout the whole Plant maintaining a Correſpondence between one Part and another, even from the extream Parts of the Head, to the extream Parts of the Root.

So that it is reaſonable to conclude, that when any Part of a Tree is envenomed in its Juices, the whole will be infected after the ſame Manner, as in the Inoculation of the Small-Pox, where ſome of the poiſonous Matter taken from the Puſtules, and inoculated in an healthful Perſon, will in a ſmall Time ſhew it ſelf in ſeveral Parts of the Perſon that has been inoculated.

He proceeds to inſtance in the *Brazile Jeſſamine*, where more may be ſeen, and alſo further Inſtances of the *Sap's Circulation* in the Articles, *Variegation*, *Vegetation*, *&c.*

12. SARCULATION,

Sarculation.]

IS a weeding or plucking up Weeds.

13. SATYRION, *or* ORCHIS; *ſee* BEE FLOWER.

14. SAVIN, *or* SABIN.

THIS Plant, Mr. *Mortimer* ſays, will make fine Hedges, and by clipping may be brought into any Sort of Form, beyond any of thoſe Trees commonly made uſe of for that Purpoſe; eſpecially ſuch as are not deſigned to grow to any Stature or Bulk. It is eaſily increaſed either by *Cuttings*, *Layers* or *Seeds*

15. SAVORY.

SAVORY is of two Sorts, the *Summer Savory* and the *Winter Savory*. The *Summer Savory* is an annual Plant, and is raiſed by *Seeds*. The *Winter Savory* is a perpetual Plant, and will live over the *Winter*, and is increaſed by *Seeds* or *Slips*.

16. SAXAFRAS, *or* SASSAFRAS-TREE.

THIS is a *Virginian* Plant. Mr. *Bradley* ſays, it loſes its Leaves in the *Winter*, and in the *Spring* bears *yellow* Flowers in Cluſters, which are ſucceeded by *blue* Berries, ſomewhat reſembling thoſe of the *Lauruſtinus*, upon *red* Foot Stalks.

Theſe Berries are to be ſown in *Autumn*, in Pots of light Earth, and ſet into the Green-houſe in Winter, and in the Spring following aſſiſted with a Hot-bed. It loves a light Soil, and he is of Opinion, it might be brought to live in our Woods, after it had been a little hardened, and uſed to our Climate.

17. SCABIOUS.

Deſcription.]

THIS Plant is thus deſcrib- by Monſ. *Liger*. It puts forth oblong, hairy and jagged Leaves, and a ſmall, round, ſtrait Stalk, from whence proceed a great many Leaves. At the End the Stalks grow Flowers of equal Leaves, all contained in one common Cup, of which thoſe that are in the Middle are divided into four or five Parts, forming, as it were, two little Lips; the other comes, as it were, out of the Top of the *Embrio*, and grows in a Cup proper to them, which in Time becomes a Capſula containing oblong Seeds, ſurmounted with a Crown of *blue* or *violet* coloured Flowers, which in others are *whitiſh* and rough.

Various Kinds.] Mr. *Carpenter* ſays, there are ſeveral Sorts of *Scabious*, but we in our Gardens commonly cultivate but two of them, which are the *Spaniſh Scabious*, and the ſweet *Indian Scabious*.

They are called *Bis Annual hardy Plants*, becauſe they ſeldom flower till the ſecond Year after ſowing, and then die.

Mr. *Mortimer* ſays, the common Sort grows wild; but there are ſeveral Sorts planted in Gardens, the *Indian Scabious*, the *red Scabious* of *Auſtria*, and the *white flowered Scabious*, flowering about July, and the *Indian Scabious* in *September*.

Way of increaſing.] The Seeds are to be ſown in the Spring upon Beds called *Seminaries*, and are to be tranſplanted out either in *Auguſt*, or the Spring following into Beds or Borders.

To gather the Seeds.] In order to get good Seed from them, he ſays, the Seeds muſt be gathered from the firſt Flowers; and therefore he directs, to remove the young plants the Beginning of *June*, to prevent them from running into Flower the the firſt Year, and this will cauſe them to produce Flowers ſooner the next; and ſo the Seeds will have Time to ripen. Theſe Seeds are to be ſown in *March*, in dry Weather, and watered, and if the Winter be not too ſevere, they will live over it.

Soil.] Monſ. *Liger* ſays, it loves a light Soil and a cool Place.

Sowing.] The Seed, he ſays, muſt be ſown thin, either in open Grounds, or hot Beds in *September*, and the Beds muſt be covered with a little Mould, and covered with Straw to preſerve them from Cold, but muſt be uncovered in good Weather. When the Plants begin to riſe, they muſt be watered, and weeded, and in *March* are to be tranſplanted, and watered immediately. The *Scabioſa Montana Latifolia*, or Mountain *Scabious* with larger Leaves, may be ſown in *March*, either in open Ground or in Beds or Pots.

Culture.] But *Scabious* being a laſting Plant, which at the firſt planting runs mightily into Roots; the moſt expeditious Way of propagating it is by Suckers, and as for the Culture it is ordered the ſame Way as the Poets *Hyacinth*, which ſee.

18. SCORZONERA, *or* SPANISH SALSIFY.

THIS Plant loves a light Soil, and is raiſed from Seeds ſown in *March*. See *Spaniſh Salſify*.

19. SCRUPOSE.

SCRUPOSE ſignifies full of Gravel Stones.

20. SCRUPOSITY.

SCRUPOSITY, Stonyneſs.

21. SCURVY-GRASS.

GARDEN *Scurvy-Graſs*, but eſpecially *Sea Scurvy-Graſs*, is of a hot biting Nature, and like to *Naſturtium* and a few of the tender Leaves may be put into Sallets. It is raiſed of *Seed.*

22. SCUTCHEON.

A *Scutcheon* is a Bud to be grafted.

23. SEA THRIFT,

THIS is a *vivacious* Plant, is multiplied by parting the Tufts of Roots, it will grow in any Sort of Earth. See *Sea Gilliflower*.

24. SEDUM.

OF *Sedum* or *Houſleek*; there are great Varieties which, Mr. *Bradley* ſays, come from the *Cape of Good Hope*, which are very beautiful, and are propagated with caſe, after the ſame Manner as the *Ficoides*, or *Fig-Marygolds* are.

But the Tree Kind, called *Sedum Arboreſcens*, which is the largeſt;

largeſt of them, and one of the moſt beautiful Plants belonging to a *Green-houſe*; eſpecially that Species of it, which has its Leaves variegated with *green* and *yellow*, and very often the Leaves tipt with *purple* deſerves to be cultivated.

He ſays it loves a ſandy Soil, and may be propagated with eaſe by Branches of it being ſet in the Ground in any of the Summer Months.

They ought to have as much Air and Shade, as is poſſible, allowed them in the Summer time, but very little Water, and in the Winter no Water at all.

It is a common Error to draw them under Glaſſes, or expoſe them to the Sun in the Summer time; the former directed Management of them makes them more beautiful in their Leaves.

And indeed every Plant that feeds upon the Air, as this *Sedum* chiefly does, ought to be treated in the ſame Manner, if you would have them keep their beſt Colour.

If the ſeveral Sorts of *Sedums* being taken in Branches, or Slips be hung up in a Room where the Air has a free Paſſage, theſe Branches or Slips will remain firm and *green* for ſeveral Years; and beſides, when the Air is tending to Moiſture, theſe Branches, or Slips, will put forth Roots, which ſometimes ſhoot to a very great Thickneſs; but at the approach of dry Weather, if they are hindred from having the free Air, they ſhrink and dry up: An Inſtance of this may be ſeen in that Piece of *Sedum Arboreſcens*, that is hung up at Mr. *Fairchild*'s at *Hoxton*.

25. SEEDS.

DR. *Agricola* tells us, That there is incloſ'd in *Seeds* a little *Germ* or *Bud*, that compoſes the Prime and moſt noble Part of the whole; and which, according as ſome curious Perſons have calculated, hardly makes the Thouſandth Part of the *Seed*; but in this ſmall Part, the Image and Repreſentation of the whole Tree is perfectly delineated and expreſs'd; and this principal Part being any way hurt, ſpoil'd or loſt, the *Seed* (however otherwiſe large or perfect) will come to nothing, but will rot in the Earth.

He adds, That the *Seeds* of *Fruits*, when ſeparated from them, tho' not kept in the Earth, will live freſh and healthy a great many Years, by Means of its intrinſick Spirit; but when it grows very old, it is unfit for Vegetation.

But notwithſtanding what ſome Gardeners ſay, That ſome *Seeds* are the better for being two or three Years old; yet he is of Opinion, That *Seed* of a Year old is beſt: For then the Spirit is freſh and lively; the Juices, which are the Principle of Nutrition and Growth, are ſtill ſuſceptible of Motion in the Places of their Reſidence, and the whole Structure is in a good Diſpoſition.

But that the vegetative Principle will remain longer in one *Seed* than another; and in the *long* and *round Seed* longer than in the *flat* and *ſmall Seed*; for that in the *large* and *round Seed*, as well as in the *oval*, the *Juices* circulate more freely by an interior Motion, and have a greater Circuit. And becauſe the *Juices* are in them in greater abundance than in the *ſmall* and *flat Seed*, they can neither evaporate or dry ſo ſoon.

But thoſe *Seeds* that are very old, the *Juices* are conſum'd and dry'd, and the Organs are otherwiſe modified; and ſo the moving vegetative Principle can act no longer.

Monſ. *Quintiney* ſays, That moſt *Seeds* grow naught after one or two Years at moſt. That there are hardly any but *Beans*, *Peas*, the *Seeds* of *Citruls*, *Cucumbers* and *Musk-Melons*, that will laſt eight or ten Years. The *Seeds* of *Colli-flowers* will laſt three or four Years: And thoſe of all Sorts of *Endive* and *Succoury* five or ſix.

No *Seeds* will hold good ſo ſmall a Time as *Lettuce-ſeed*; yet they are better the ſecond Year than they are the firſt: But are good for nothing the Third.

To know the Nature of the Seeds of Trees; Mr. *Cook* ſays, he always obſerv'd the Shape, Taſte, Skin or Shell, that his *Keys*, *Kernels*, *Nuts*, *Stones* or *Seeds* had: And if he found by their Shape that they were very porous, and by feeling that they were ſpongy, and that their Taſte was either very little or very mild, he then reſolv'd upon ſowing them as ſoon as they were ripe, or as ſoon as he had procur'd them, and expected but little Succeſs if he kept them afterward. He directs, as a Specimen of this, to obſerve the *Elm*, the *Poplar*, the *Sallow*, the *Angelica*, *Paſpere* or *Garden-Samphire*, *Scorzonera*, *&c.*

He adds, as for thoſe *Seeds* that are of a mild Taſte, and the Skin or Shell cloſe, if they are temperately dry'd, they may be kept 'till the Approach of the *Spring*, and longer; as *Acorns*, *Cheſnuts*, *&c.* but a ſure Seaſon to ſow them, is in the *Spring*, after they are gathered; therefore he adviſes to defer it no longer.

As for thoſe *Seeds* that are of a hot or bitter Taſte, or have cloſe Skins or Shells, if there be Occaſion, they may be kept 'till the next *Autumn* after they are gathered, if they be gathered when they are full ripe, and kept dry; if the fleſhy Part be taken off clean, when that is ripe. And tho' ſome have ſaid, if they were ſown with their Fleſh on, they will do well, (as *Cherries* or *Peaches*) that he ſays is a Miſtake, as he has found by Experience, in ſowing the Kernels of rotten *Pears* and *Apples*; which, tho' they had been rotten but a little Time, would not grow.

There are many *Keys*, *Seeds* and *Stones*, which are of a hot and bitter Taſte; as, *Aſhes*, *Almonds*, *Mezereon*, *Muſtard-ſeed*, *Peaches*, *&c.* which altho' they may be kept long, he adviſes, not to neglect the Seaſon; for many of theſe and other *Seeds* will lie in the Ground near two Years before they come up. If they are ſown in *October*, they will not come up before the *Spring come Twelve-Months*; and if they be ſown early in the *Spring*, they will come up the next *Spring*.

Another Way to know the *Seed* of this Nature, he ſays, is by their hanging long on the Trees; becauſe Nature there finding it ſelf ſtrong does not ſeek out ſo early to preſerve its Kind: The *Aſh*, the *Holly*, &c. hang on the Tree a long Time, and alſo lie a long Time in the Ground; the *Elm*, the *Sallow*, and the *Sycamore* fall early, and come up quickly.

As to the Setting of *Seeds*, he adds, he has been inſtructed by Nature how to ſet them; as an *Acorn* for the moſt part falls to the Ground with its ſmall End downwards: And if *Acorns* fall upon Mould or Moſs, it is obſervable, that moſt of them lie on one Side with their ſmall Ends tending moſt to the Earth; and he ſuppoſes this to be the beſt Poſture to ſet any *Stone* or *Nut*: For it is obſervable, that the *Seed* of all Trees growing in *England* puts forth its *Root* firſt at the ſmall End; and when that *Root* has taken Hold on the Ground, it puts forth the Shoot for the Tree, at the very ſame Place from whence the *Root* came.

So that, ſince both *Root* and *Shoot* put forth both of them at ſmall End, if the ſmall End t downwards, the Body of the *Stone* or *Seed* may hinder the Shoot; he beſt approves of laying them in the Ground on their Sides; if they are ſuch *Seeds* as are heavy, they may be ſown the deeper; as, *Acorns*, *Apricocks*, *Cheſnuts*, *Peaches*, *Walnuts*, &c. at the Depth of about two or three Inches.

If the *Seed* be light, it ſhould be cover'd with but a little Mould, about half an Inch deep, as the *Elm*, &c.

He therefore adviſes, to lay the flatteſt Side of the *Seed* downwards; as, ſuppoſe it be the Stone of a *Peach*, to ſet it ſo as it will lie on a Table, and then it will lie with the Crack where the Shell parts uppermoſt, and the other Crack lowermoſt, to let out the Water; for it is his Opinion, that thoſe Kernels that are in Stones or Shells do not love too much Water at firſt.

As to all Sorts of *Keys* and *Seeds*, he adviſes, to let them be full ripe; that they be preſerv'd when they begin to fall much, which is a ſure Sign of the Ripeneſs of any Fruit or Seed, unleſs it be by Accident. The *Seeds* preſerv'd ſhould be thoſe of a ſtrait, thriving Tree; becauſe the *Keys* or *Seeds* will then be the larger and more ſolid, and conſequently be more able and likely to ſhoot the ſtronger, and to maintain themſelves better.

The *Seeds* gathered from old Plants or Trees, or old Seeds, if they be perfect, will come up ſomething ſooner than the *Seeds* of young Trees.

The Reaſon why he adviſes to gather them from a ſtrait and thriving Tree, is, becauſe they will be the more likely to run up, and grow ſtraiter than thoſe that are gathered from Pollards.

He adds, *Beans* and *Peaſe* put forth their *Root* at the Side, and then the ſame Sort of Leaf at the Place where the *Root* came out, that grows on the Stalks: So does *Almonds*, *Apricocks*, *Peaches*, *Plums*, *&c.* And the only Difference is, that *Beans* and *Peas* put forth at the Sides, and the others always at the ſmall Ends.

There are alſo ſeveral Sorts of Trees, and moſt Sorts of Plants that are ſmall, that put forth the *Root* at the ſmall End; as, the *Apple*, *Aſh*, *Elm*, *Maple*, *Pear*, *Quince*, *Sycamore*: And moſt Sorts of Seeds of Trees, which are not incloſed in Stones or Shells of Seeds, as, *Angelica*, *Carduus*, *Carrots*, *Melons*, *Parſnips*, and indeed moſt Sorts of Seeds: Theſe Sorts, as ſoon as that *Root* before-mention'd has laid hold of the Ground, they put out two falſe Leaves, which are nothing like thoſe that grow on the Tree or Plant; and theſe two falſe Leaves are the *Seed*, which divides into two Parts, and remain ſo ſome ſmall Time on the Top of the Ground; and then a Shoot comes forth between theſe two falſe Leaves, which produces Leaves that are like thoſe of the Tree or Plant from whence it proceeded.

Mr. *Mortimer*, treating of *Seeds*, adviſes, to chuſe thoſe that are full ripe, weighty and ſound, and that ſhake down eaſily from the Boughs. That they ſhould be taken from the Tops of the moſt thriving and youngeſt Trees, when they are ready to fall; which for the moſt Part directs the beſt Time for ſowing them, and that is about *November*, (for moſt Sorts of Seeds.) But if the Land be very cold and moiſt, it may be better to ſow them in the *Spring*.

As for *Acorns*, *Maſt*, and other *Seeds* that may very well be kept 'till the *Spring*; theſe he would have barrell'd up in moiſt Sand or Earth, during the *Winter*, at the End of which, they will have ſprouted; and if they are then put into the Ground with Care, will be as apt to take, as if they were ſown earlier; nor will be in ſo much Danger of being devoured by Vermin, as thoſe that are ſown in *Winter*; nor will they be ſo liable to be injured by the encreaſing Heat, as thoſe ſown in the Beginning of the *Winter*, eſpecially in ſuch Grounds that are hot and looſe.

He therefore adviſes; if you have Occaſion to preſerve a great Quantity of *Seed*, to chuſe a fit Piece of Ground, and to raiſe it three Foot high with Boards; then to lay on a Layer of fine Earth, about a Foot thick, then a Layer of *Seeds*; as, *Acorns*, *Keys*, *Maſt*, *Nuts*, *Haws*, *&c.* either mixt together, or ſeparated with a little Mould ſcattered among them; then to lay on them a Layer of Earth or Sand.

Or theſe *Seeds* may be buried in dry Sand or Earth pulveriz'd, either in Barrels, or laid in a deep Cellar, to keep them from the Severity of the *Winter*.

If the *Seeds* be gathered in a moiſt Time, they ſhould be laid a drying, and kept ſo 'till they are ſown, which, if you pleaſe, may be preſently after *Chriſtmaſs*; and if they ſhould begin to ſpire out before they are ſown, then Care muſt be taken that they be put into the Ground before the Sprouts grow dry.

As for the making Choice of the beſt *Seeds*, he ſays, they may be known by their Shape and Weight: And as for the Manner of ſetting them, he differs not from the Directions given by Mr. *Cook*, which you have above.

As for the medicating or ſteeping the *Seeds*, or the forcing or enriching the Earth by Compoſt, *&c.* this he reckons needleſs for Foreſt Trees; and as to what may be neceſſary for each particular Tree, you will find it under each particular Article.

But if the *Seeds* or *Kernels* ſhould be extraordinary dry, you may lay them twenty four Hours in Milk or Water, only impregnated with a little Cow-Dung, in Order to forward their ſprouting.

As to Exotick Seeds and Plants.] Beſides what you will find under other Articles, I ſhall add two or three Particulars, that Mr. *Bradley* preſents us with, proper to be obſerv'd: That beſides what he had before adviſ'd, as to being the beſt Way to gather the *Seeds* in their *Shells* or *Caſes*, and ſo to have them brought to *England*; becauſe the *Caſes* will be of Uſe to preſerve the *Seeds* during the Voyage; they will alſo be of Uſe in informing us what Claſs or Order the Plants are of, from which thoſe *Seeds* were taken.

And if there be any Plants brought over in Boxes of Earth, he thinks it would be proper to have ſome of thoſe *Seeds* ſown in thoſe Boxes of Earth, eſpecially ſuch *Seeds* as are of the Tree Kind; becauſe they will be forwarded as to their Growth, in the Time they are coming over.

But if there cannot be this Conveniency, he approves of a Method communicated to him by a curious Gentleman: That when the *Seeds* have been gathered and well dried, as the Warmth of the Air of the Place will do it, or a warm Pocket will do it in three or four Days; that then they be put into a Glaſs-Bottle, or ſome other glaz'd Veſſel, which is cloſe ſtopp'd with a Stopple of the ſame Sort, which will be better than a Cork, becauſe Cork is apt to rot by Change of Air: This Stopple muſt be well cemented with Pitch, or Bees-wax and Roſin: Then this Veſſel is to be plac'd in a larger Jar or Veſſel of glaz'd Earthen-ware; and the Jar fill'd in all the Vacancies with common Salt, the Stopple and all being cover'd over with the Salt.

The *Seeds* being thus ſecur'd, cannot poſſibly be injur'd by their Paſſage through different

Climates; for it has not yet been diſcovered, that any Inſect can live in a Body of common Salt; nor that where Salt is the Medium juſtly regulated between the Air and the Body, that ſuch Body can putrify, ſo as to be render'd a proper *Nidus* for any Inſect to lay its Eggs in.

And beſides, the Salt will correct the extraordinary Heat of the warmer Climates; and being thus diſpos'd between the hot Air and the Seeds, by Reaſon of its Fixation and Coldneſs, there is ſcarce Reaſon to ſuppoſe that the exceſſive Heat of the hotteſt Climates will be able to penetrate through it, ſo as to cauſe any conſiderable Decay in the Seeds.

And beſides, as the Salt is firſt fix'd by extraordinary Heat, it is not to be ſuppos'd, that it can ſuffer any great Change or Alteration while it is paſſing through the hot and dry Climates; nor that the Seeds which are ſhelter'd under it can be much alter'd. And as to our Climate, it is but rarely diſpos'd to melt Salt: So that *Seeds* thus brought, may be accounted to be in good Perfection.

26. SEGMENT.

SEGMENT-*Leaves* are Leaves of Plants cut and divided into many Shreds.

27. SELLERY. *See* CELERY.

28. SEMENIFEROUS.

SEMENIFEROUS is bearing or producing Seed.

29. SEMIFISTULAR.

SEMIFISTULAR-*Flowers* are ſuch, whoſe upper Part reſembles a Pipe cut off obliquely, as in *Ariſtoloobia* or *Birthworth*.

30. SEMINAL.

SEMINAL-*Leaves* are two plain, ſoft, and undivided Leaves, that firſt ſhoot forth from the greateſt Part of all ſown Seeds; which Leaves are very different from thoſe of the ſucceeding Plant, in Size, Figure, Surface and Poſition.

31. SEMINARY.

SEMINARY is a Seed-Plot or Nurſery, for raiſing of young Trees or Plants.

Seminary and Nurſery for Foreſt-Trees.

The Advantage in making a Seminary for *Foreſt-Trees*, Mr. *Mortimer* ſays, will be found in the being ſupplied to fill up Hedge Rows, and other waſte and uncultivated Places will ſufficiently convince of the Uſefulneſs of it.

Therefore he adviſes to chuſe a fit Piece of Ground that is well fenc'd, having a *South Eaſt* or *South* Aſpect, and that is well ſheltered from the *North* and *Weſt*.

This is to be well cleared of all Trumpery, and if it be large it may be plowed up freſh, in order to make it dig the eaſier, but if it be not large it may be dug up with the Spade; but if it be ploughed, it is to be dug afterwards two Spits deep, where the Soil is deep enough to allow it; and the Surface of the Earth, or upper Part, laid undermoſt, and the under Spit laid uppermoſt. This, tho' troubleſome, will afterwards make amends in the Growth of the Trees. They having every where looſe Earth to take Root in, and alſo the beſt Soil under them.

This is the only Way he would have taken to advance the Growth of Trees, and not to mend and improve the Land by Dung, *&c.* as is done by many Gardeners for their own Profit, but not for the Advantage of the Buyer; becauſe it will be difficult to make ſuch Trees grow, if they are to be removed to a worſe Soil.

He adds, that it will alſo do well if the *Nurſery* be dug up the Winter before it is ſown or planted, ſo as to be mellowed and made fine by a Winter and Summer fallowing.

He directs to make ſome ſmall Beds about three Foot wide, at one End or Side of the *Nurſery*, and to leave a ſmall Part between them for the *Seminary*, and to make ſome ſmall Trenches at about a Foot Diſtance, croſs the Beds, and to throw the Seeds into them, but not too thick, and to cover them with a Rake; but *Oaks*, *Cheſnuts*, *Walnuts*, *&c.* had better be ſet as *Beans* are, and at the Diſtance a Foot.

The Time of the Spring ſowing may be in *February*, and the autumnal ſowing at the latter End of *October*.

If the *Nurſery* happens to be a gravelly, ſtony, Soil, it will be convenient to pick out the Stones, as it is digging, becauſe the Roots of Trees are often fretted and gall'd by the Stones that lie near them, and ſo often canker.

If the *Nurſery* be a ſhallow Soil, and apt to burn in Summer, it may do well to mix Clay or Brick Earth with it, or Marle to deepen the Soil.

Thoſe Plants that are gathered or drawn out of the Woods ſhould be planted immediately, becauſe their Roots are very apt to mortify, and grow hard and withered by the cold Air and Wind, becauſe they come from a warm Situation.

When the Plants begin to peep out of the Ground, they ſhould be earthed up, eſpecially after great Froſts; for then the Earth is apt to ſwell and ſpew them out. And where you ſee they are too thick, when they are about an Inch above Ground, you may draw them up, in a moiſt Seaſon, and plant them in Places where they are wanted.

When theſe Seedlings have ſtood while *June*, you may give them a Weeding or a ſlight Houghing, and ſcatter among them a little mungy Straw, rotten *Beans*, *Fern*, *&c.* to keep their Roots from ſcorching, and to receive the Moiſture that falls.

The next *March* you ſhould chop it in Pieces, (for by that Time it will be rotten) and mix it with the Earth; this you ſhould do every Year for two or three Years; for the Subſtance of the Kernel will hardly be ſpent in the Plant by that Time.

When they have ſtood about three Years you may tranſplant them into the *Nurſery*, and after that Time, the ſooner, the better they will grow.

Plant them in Rows at about a Yard diſtance one from another; and the Rows being two Foot diſtant one from the other, or elſe when they are taken up there will be Danger of cutting the Roots. Here they may ſtand till they are big enough to be planted out where you would have them grow.

Some, when they firſt tranſplant the Trees out of the *Seminary*, cut them off about an Inch from the Ground, and plant them after the Manner of Quick: But this Method he does not approve of, as to any Trees that are deſigned for Timber, or have a large Pith, becauſe it ſpoils the Root End of the firſt, and lets the Water into the latter, the former is required in the But End being the principal Part of the Tree, it divides the Pith, and conſequently the Grain of the Wood too, to prevent it from running clear, if it be to be cleft into Laths, Pales, &c. therefore he only prunes up the Side Boughs.

A Seminary and Nurſery for Fruit-Trees.

Mr. *Mortimer* directs, that theſe be ordered much after the ſame Manner with the former.

1. To cleanſe the Ground from Weeds, Roots, &c. about *October*; and adds this Remark, that wet or ſtiff Clay, or Land that is rich with Dung, is not proper for this *Seminary*, &c.

2. The Mould is to be made very fine, and if *Crab-ſtocks* enough can be procured from the Woods, the *Nurſery* may be planted with them; but if not, you muſt furniſh the *Seminary* with thoſe which are eſteemed as the beſt.

The Way to furniſh the *Seminary* is to preſerve the Stones of ſuch Fruit as are early ripe till *October*, by laying them in Sand; and then, if Beds be made for them, by a Line laid croſs the Beds, to prick Holes at five or ſix Inches diſtance one from the other, and to ſet the Stones about three Inches deep, and the Lines are to be laid at twelve Inches diſtance one from the other.

But if they are not ſet on Beds, the Rows ſhould be two Foot diſtant one from the other, that there may be Space to go between them to weed them.

This Method is proper for al Kinds of Nuts, &c.

But as for Stocks to be rais'd from the Seeds of Kernels of *Apples*, *Crabs* or *Pears*, ſome are for taking the Muſt after *Cyder*, *Perry* or *Verjuice* has been made, *i. e.* the Juice preſſed out, and either the ſame Day, or the next, before the Muſt heats, to ſift the Seeds out with a Sieve, and to ſow them as ſoon as poſſible, very thick, on Beds of fine Earth, becauſe ſome of them being bruiſed in the Grinding or Pownding, and ſome not being ripe, a great many of them will not come up at all. Being ſown they ſift on them Mould that is fine about two fingers thick, and lay *white* Thorns or Furz on them, while the Ground is ſettled, to prevent them from being devoured by the Birds. In the Winter they lay Fern or Straw on them, but take it away in the Spring, before the Seeds begin to ſhoot, which is uſually in *May*; they weed them well; and if the Summer be dry, water them. As for what Stocks are proper for grafting particular Fruit. See the Article *Orchard*, &c.

33. SEMINATE.

TO *ſeminate* ſignifies to ſow Seeds.

34. SENNA.

Deſcription.]
OF this Plant there are ſeveral Sorts, but only two of them are commonly known and cultivated in Gardens, *viz.* the *Scorpion Senna*, and the *Bladder Senna*, both which yield a pleaſant Leaf and Flower. Mr. *Bradley* recommends the *Scorpion Senna* as the moſt beautiful and deſerving to be cultivated, in that the Bloſſoms ſhew themſelves as well in *Autumn* as the *Spring* Seaſon.

Soil.] They delight in a loamy Earth and the Shade.

Way of Propagation.] They may be propagated either by *Seeds* ſown the latter End of *March*, or by *Layers*, laying down the tender Sprigs in the Earth in *April* or *May*, which will ſoon ſtrike Root.

Culture.] They grow but ſlender, and ſo need the Support of a Wall or Pales; but being tonſile, they may be reduced into any Form; they make pretty Shrubs for Wilderneſs Work.

35. SENSIBLE, *or* SENSITIVE PLANTS.

THIS Plant is ſo called becauſe as ſoon as you touch it, the Leaf ſhrinks up together, and in a ſmall Time opens it ſelf again. This Plant is rais'd in a hot Bed, and preſerved with great Care, being one of the moſt tender *Exoticks* we have.

Mr. *Bradley* informs us, that in the Beginning of *Auguſt* 1723 he ſaw the *ſenſitive Plants* about ſeven Foot high in Bloſſom; and the *humble Plants* were then preparing to put forth their Flowers. That theſe were propagated by Mr. *Miller*, in his new Frame in the Phyſick Garden at *Chelſea*, only by the uſe of the *Tanner's Bark*; whereas he never knew the greateſt Artiſt raiſe the *ſenſitive Plant* in hot Beds made of

Horſe-Dung, to above two Foot high, in one Summer.

36. SENSITIVE.

SENSITIVE *Plants* are ſuch as contract their Leaves or Flowers when touch'd, as if they were really ſenſible of the Touch; but as ſoon as the Hand is removed ſpread themſelves open, and flouriſh again.

37. SEPTEMBER.

Work to be done in the Kitchen, Garden and Orchard.

THIS is the Seaſon for the Gardener to furniſh his *Kitchen Garden* with every Thing that will be neceſſary for Winter uſe.

The Showers, which are uſual at this Time, prepare the Ground for receiving many Plants and Seeds.

And by Reaſon of the great Heats declining, many things may be now replanted, which could not have been removed without Danger in the Months foregoing.

The Beginning of the Month is a proper Time to give *Turnips* their firſt houghing.

Such Fruits as are ripe on the Trees ſhould be gathered in a dry Seaſon; and ſuch as are full grown, and fit to be laid up for uſe in *October* and *November*.

Thoſe *Apples* and *Pears* as are fit to be gathered will eaſily leave the Tree; therefore if they do not eaſily quit the Tree they ſhould not be violently pulled off, if they are, they will be apt to ſhrivel and have an inſipid Taſte.

Laſting Winter Fruit is not to be gathered till *Michaelmaſs*; and now is the Time for making Cyder and Perry of thoſe Fruits that are not laſting.

Gather ſuch of your ſmall Seeds that are ripe. If *Leek* Seeds are black, cut the Heads off from the Stems, and ſpread them on a Cloth every Day in the Sun, till they are fit to be thraſh'd out.

Gather the Pods of *Garden Beans* and *Kidney Beans*, and choice *Peas*, and put them in the Sun to dry, and being dry'd lay them by in the *Pods* to preſerve the Seeds till you ſow them.

Cut open full ripe *Cucumbers*, take out the Seeds and Pulp, and after they have lain together two or three Days, waſh them clean. You may lay the Seed in Water for a Day and a Night, and then lay them in the Sun to dry for about ten Days, let them be throughly dry, or elſe they will rot: When they are dry lay them up.

Sow *Cabbages*, *Colliflowers*, *Onions* and *Turnips*; plant out ſuch *Cabbages* as were ſown in *Auguſt*; make Plantations of *Cabbages* and *Coleworts*; and thin *Turnips* where they grow too thick.

Cover thoſe *Cucumbers* that were ſown in *July* every Night.

Make Beds for *Muſhrooms*.

Sow *Spaniſh* Radiſhes for Winter uſe.

Replant *Endive* and all Fibrous rooted Herbs, which have not been done before.

Earth up *Sellery*; and raiſe Banks of Earth about thoſe *Chardons* that are for Blanching.

Tranſplant *Aſparagus Roots*, *Artichokes* and *Strawberries* out of the Woods.

Plant the *Dutch Brown Lettuce* to ſtand the Winter.

Sow *Sorrel* and *Chervil*, and *Spinage* to be cut in *February*.

Releaſe inoculated Buds, if not done before, eſpecially if they pinch.

Tranſplant young *Collyflower* Plants into thoſe Places, where you would have them flower, and into ſome Nurſeries which are under ſome warm Wall or Place of Shelter.

Thoſe which are at this Time planted out for good, will bloſſom above a Fortnight ſooner than thoſe that ſhall be planted in the Spring; and if they be well defended from the Froſts with Glaſs Bells, the Flowers will be much larger.

If it be ſhowery the laſt Week in this Month, Fruit-Trees may be very ſafely planted, altho' their Leaves have not yet fallen; ſuch as *Cherries*, *Nectarines*, *Peaches*, and other Stone Fruit: But it may be better to let *Apples*, *Pears*, &c. alone till the Middle of *October*.

Gather *Saffron*, and prepare Compoſt to trench up your Earth and Borders.

Sow ſmall Herbs for Sallets in ſome Place that is well expoſed; take care to provide ſome Mixtures for this Seaſon that are of a hotter Taſte than thoſe that were raiſed in the former Months.

Earth up Winter Plants and Sallad Herbs.

Make an End of gathering and drying *Hops*, cleanſe the Poles of Haulm, and lay them up for the next Year.

Sow Seeds of *Naſturtium Indicum* in Pots, in order to ſtand the Winter; ſhelter them in a *Green-Houſe* and they will do well.

Take Bees, ſtraiten the Entrance into the Hive; deſtroy Waſps, &c. and you may remove Bees.

Products of the Kitchen Gardon, &c.

Artichokes which were planted in the Spring alſo, very good Flowers and Suckers.

Cabbage Lettuces of ſeveral Sorts in full Perfection.

Young *Garden Beans*, ſome *Kidney Beans*, and *Rouncival Peas*.

Muſhrooms, *Melons* and *Cucumbers*.

Burnet, *Chervil*, *Creſſes*, *Endive*, young *Onions*, *Radiſhes*, *Cellery* and *Tarragon* for Salleting.

Garlick, *Horſe-Raddiſh*, *Onions*, *Rocamboles*, *Shalots*, *Beets*, *red* and *white*, *Carrots*, *Scorzonera*, *Skirrets*, *Turnips*, *Cabbages* and Sprouts of *Cabbages* in plenty, and *Savoys*.

Fruits in prime and yet laſting.

Apples; the *red Greening*, *Harvey violet Apple*, *Lording Apple*, *Pear Apple*, the *William*, *Pearmain*, *Quince Apple*, the *red ribbed bloody Pippin*, *&c.*

Pears; the *Arundel-pear*, the the *Balſom-pear*, *Hampdens Bergamot*, the *Orange Bergamot*, the *Bezy d' Hery*, *Bing's-pear*, the *Bluſter-pear*, the *Summer Bon Chrêtien*, *Norwich*, the *Brunſwick-pear*, the *Emperor's-pear*, the *Frith-pear*, the *Green-field-pear*, the *Lewis-pear*, the *Meſſire Jean*, the *Poppering-pear*, the *Queen Hedge*, the *Rowling-pear*, the *black Worceſter*, *&c.*

Grapes; the *Blue*, the great *Blue*, the *Frontiniack*, the *Muſcadine*, the *Parſly* and the *Verjuice Grape*.

Raſberries, *Figs and Plums*.

Work to be done in the Flower Garden and Green-Houſe.

You may plant ſome Sorts of *Anemones* for early Flowers; but let the Earth be a Light natural Soil well ſifted; but if you ſtay till the next Month, they will be more certain of growing.

It is the beſt Time to ſow the Seeds of *Auricula's*, but ſet the Caſes in the Sun till *April*.

Thoſe Flowers that riſe to a conſiderable Height, ſhould be ſtaked down to ſecure them from being injured by the Winds.

Plant *Daffodils* and *Colchicums*; tranſplant *Camomile*, *Capillaria*, *Chalcedon*, *Cyclamen*, *Hepatica*, *Iris*, *Matricaria*, *Primroſes* and *Violets*, *&c.*

If *Carnation* Layers have not been taken off in *Auguſt*, it ſhould not be deferred any longer, and plant them in the Places where they are to bloſſom.

Sow *Alaternus*, *annual Stocks*, *Candy-Tufts*, *Crown Imperial*, *Delphinium*, *Lackſpurs*, *Martagons*, *Nigella*, *Phillyrea*, *Primroſes*, *Poppies*, *Venus Looking-Glaſs*, and ſuch *Annuals* as are not prejudiced by Froſts.

Remove ſeedling *Digitalis*, plant Slips of *Lychnis*, ſet *Tuberoſes* into the *Conſervatory*, and keep them dry. Some ſay the beſt Way is to take them out of the Pots, and to preſerve them dry in Sand, or wrapt up in Papers, and to keep them in a Box near the Chimney.

You may ſtill continue to tranſplant all fibrous rooted Flowers, which have done blowing; and cut down the Flower Stems of ſuch as have done growing, within three Inches of the Ground.

About the End of this Month put ſome *Tulips* into the Ground, eſpecially thoſe that are Breeders, but let not the Ground you put them into be rich; for that which cauſes the Variegations in Plants is want of Nouriſhment.

Therefore Mr. *Bradley* adviſes to ſet all *breeding Tulips* in half natural Soil, and the other half the Rubbiſh of old Buildings, or elſe to ſet them about pyramid Yews, which have ſtood long enough to make the Earth poor.

Sow *Stock-Gilliflowers*, that if the Winter ſhould deſtroy the old Stocks you may have a Supply in the Spring.

You may continue to ſow the Seeds of bulbous rooted Plants, as, *Anemones*, *Crocus's*, *Fritillaries*, bulbous *Iris*, *Martagons*, *Ranunculus* and *Tulips*, in Pots or Caſes of freſh natural Earth, well ſifted about the Middle of this Month. Remove your *Ficoides*, *Geraniums*, *Orange-Trees* and *Sedums* into the Houſe and others of the like tender Nature.

Mr. *Mortimer* adviſes when the weather is fair and the Plants dry, to remove into the Conſervatory, the *Aloes*, *Amomum Plinii*, *Dates*, *Indian* and *Spaniſh Jeſſamine*, *Lemons*, *Oleander*, *Oranges* and *Tricocos*, and to take away ſome of the Top exhauſted Earth, and ſtir up the reſt; fill up the Pots or Caſes with rich, well prepared Earth, that the Roots may have Nouriſhment in the Winter Time.

Let the Windows of the *Green-Houſe* be open Day and Night, if the Winds be not too ſharp and high, nor the Weather too foggy, do not ſet the Plants in order in the *Green-houſe* till *October*, that you bring in the *Myrtles*, and ſuch more hardy Plants.

When the cold comes in ſet ſuch Plants as will not bear the Houſe, into the Earth, in a warm Place, two or three Inches lower than the Surface of the Earth, clothe them with dry *Moſs*, and cover them with *Glaſſes*; but take off their covers and give them Air, when the Sun ſhines kindly, or gentle refreſhing Showers fall; thus you may manage *Egyptian Acacia*, *Anemones*, *Flos-Cardinalis*, *Ciſtus's*, *Geranium Nocte Olens*, *Maracocs Marum Syriacum*, *Ranunculus*, &c.

Flowers blowing in the Flower Garden and Green-Houſe.

Aloes, *Amaranthus*, *Amomum Plinii*, *Antirrhinum*, *golden Apples*, *Arbutus*, *Aſphodils*, *Aſters*, *Auricula*, *Female Balſoms*, *ſcarlet Beans*, *Campanula*, *Candy Tufts*, *Capſicum*, *Carnations*, *Clematis*, *Colchicums*, *Collutea*, *Convolvulus*, *Saffron-Crocus*, *Chryſanthemum*, *Cyclamen*, *Daiſies*, *Eupatorium*, *Ficoides*, *Gentianella*, *Geraniums*, *Stock Gilliflowers*, *Hollyhocks*, *Hyacinths*, *white*, *common*, *Spaniſh white*, *Indian yellow* and *Braſile Jeſſamine*, *Larkſpurs*, *Leonorus*, *Guernſey*, *Lily*, *Lychnis*, *Marvel* of *Peru*, *African* and *French Marygolds*, *Myrtle*, *Narciſſus*, *Naſturtium*, *Oleander*, *Paſſion Flower*, *Phalangium*, *China Pinks*, *Polyanthos*, *Pomegranates*, *Poppies*, *Monthly Roſes*, *Spiderwort*, *Annual Stocks*, *Sun Flowers*, *thlaſpi*, *ſemper Virens Tuberoſe*, *Venus Looking Glaſs*, *Veronica*.

38. SEPTIFOLIOUS.

SEPTIFOLIOUS *Plants* or *Flowers* are ſuch as conſiſt of ſeven Leaves.

39. SERNICE TREE.

THO' Mr. *Evelyn* ſays, there are four Kinds of this Tree, yet Mr. *Mortimer* ſays, thoſe we have in *England* differ little one from the other, except that ſome of them bear a much larger Berry than the others.

Way of Propagation and Soil.] They may be raiſed either by *Berries* or *Layers*, and delight in rich Clay, or hazel brick Earth, where it is rather moiſt than dry; for tho' they will grow almoſt in any Ground when they are raiſed of *Seeds*, yet they never bear well in dry Ground.

Way of raiſing them from Seed.] If you raiſe them of *Seeds* let the *Seeds* be full ripe, that is rotten; you may either eat or rub off the Pulp, and ſow them immediately in your *Seminary*, or you may keep them in dry Sand, till after *Chriſtmaſs*, and then ſow them, and when they are grown fit to be tranſplanted, remove them out of your *Seminary* into a *Nurſery*; and from the *Nurſery* you may tranſplant them as you have Occaſion: It is a Tree that bears tranſplanting very well, and therefore they may be tranſplanted of any Bigneſs; and if you head them the Wound will quickly heal up.

But being a Tree that may be often met with in the Woods, you may furniſh your ſelf with them from thence, more eaſily than either to raiſe them from *Seed* or by *Layers*. They may be alſo grafted or budded upon their own Kind, and by that Means their Fruit may be very much improved.

40. SERENE WEATHER.

SERENE WEATHER is fair Weather without Rain or Clouds.

41. SIDE SADDLE FLOWER.

Deſcription.]

THIS Plant, Mr. *Bradley* ſays, grows in *Virginia* and *Carolina*, and is, (according to the Deſcription he has had of it) one of the moſt ſurpriſing Plants of thoſe Countries, which he deſcribes as follows. It dies every Year to the Root, and every Spring ſprouts out afreſh; bears a *yellow* Flower upon a ſlender Foot Stalk, with ſix Leaves in Shape ſomewhat like thoſe of the *Flower de Luce*; upon the Top of the Stile there grows a Sort of Canopy, round on the Top like the Seat of a *Sideſaddle*, under which is the Seed Veſſel, which is divided into ſix Cells; the Plan follows the Flower, and grows about a Foot high, and ſomewhat in the Shape of a Trumpet; upon the Top of this grows a Leaf like the Lid of a Can, which when it firſt comes up is very *green*, but afterwards becomes *yellow*, and full of Veins of *purple*.

Soil.] It grows in watery and ſpungy Places.

Culture.] It requires to be ſown in Pots of Earth, reſembling a Bog, as much as can be, and then the Pots muſt be ſet in a hot Bed, and as the Earth begins to grow dry, muſt be continually ſupplied with Water. It ſhould be houſed with the *Orange Tree.*

42. SIDERATION.

SIDERATION is a blaſting of Trees or Plants by an *Eaſterly* Wind or exceſſive Heat and Drought.

43. SILIQUA.

SILIQUA is the Seed-Veſſels or Husk, Cod or Shale of ſuch Plants as are of the Pulſe Kind.

44. SILIQUOUS.

SILIQUOUS is having ſuch Seed Veſſels, *&c.*

45. SILVER BUSH, *ſee* BARBA JOVIS.

46. SIVE, *ſee* CIVES.

47. SKIRRETS.

Soil.] THIS Plant may be multiplied two Ways, either by Seed or *Off-ſets*. They love a rich *Soil*, inclining to Moiſture, rather than Drineſs.

Raiſing by Seed.] The *Seeds* are to be ſown in *March* or *February*, among other Things, and that very thin: But about *London* it is the more common Practice to raiſe them of *Slips*, or *Off-ſets*, as follows.

By Off-ſet.] In *March*, when the Leaves begin to put forth, they muſt be taken out of the *Ground*, and parted into as many *Slips* as have Roots to them, not letting any of the old Roots remain to them, but only the freſh Springing Fibres, then having made Drils about four or five Inches deep, plant them five or ſix Inches apart; for if you plant them too thick, or above one *Slip* in a Place, they will ſtarve one another; then keep them well watered till their Roots are full grown; and alſo they being apt to canker, require freſh Earth often: As you have Occaſion to uſe them, take them freſh out of the Ground.

Mr. *Bradley* ſays, that a Gardiner ſent to him for ſome *Seeds* of this Plant, which he ſowed in a black moory *Soil*, which had lately been a Plantation of *Aſparagus*, and had the largeſt, and ſweeteſt *Skirrets* he had ever ſeen.

48. SMALLAGE.

IS raiſed either by *Seed* or *Slips*, the *Seed* is pretty large and *reddiſh*, and in Figure of a roundiſh Oval, a little more full and riſing on one Side than the other, and ſtreaked from one End to the other. It is alſo raiſed by Slips. Some uſe it as a Pot Herb

49. SNAKE WEED, *ſee* BRYONY.

50. SNAP DRAGON, ANTIRRHINUM, *or* LYON'S HEART, or CALF'S SNOUT.

Deſcription].

THIS Plant is thus deſcribed by Monſ. *Liger*. This Plant ſhoots forth Stalks near two Foot high, at the ſides of which grow dark *green* Leaves oblong and pointed. At the End of theſe Stalks grow ſingle Flowers, the Leaves of which are irregular, reſembling a Mask, divided into two Lips, the uppermoſt of which ends in two Points, and the lowermoſt of which is divided into three Parts; from the Bottom of the Cup of this Flower riſes a Chive, which is faſtened like a Nail to the lower Part, which grows to the Fruit like the fore part of the Head of a Swine, which is divided into two Cells full of *black Seeds*.

Varieties.] Mr. *Mortimer* ſays, there are of this Plant pretty Diverſities: *Firſt*, The *common white Snap Dragon*. *Secondly*, The *variegated white Snap Dragon*, whoſe Leaves are broader, divided in the Middle, and turned up on the Edges, having long ſmall *purpliſh* Lines on the inſide. *Thirdly*, The *yellow*, which is different from the *common white* only in the Colour of its Flowers; and *Fourthly*, the *red*, which is of two or three Sorts. The beſt Sort of which is flowered like the ſecond Sort, of a deep *red Roſe* Colour, but the other two are of a paler Colour.

The Way of Propagation.] They are raiſed by *Seed*, bear Flowers the ſecond Year; when the Old Roots commonly die; but if the *Slips* that do not riſe to Flower, be taken off and ſet, in the End of *May*, or Beginning of *June*, they will grow the beſt. They flower from *May* to *July*, and the Seeds are ripe in *Auguſt*.

Mr. *Liger* ſays, the *Seeds* are to be ſown in the Months of *September* and *October*, and the Plants are to be tranſplanted in *April*. Mr. *Carpenter* ſays they may alſo be ſown in the Spring, and tranſplanted the *Autumn* following.

It ought to be ſowh thin on a Bed that has been well manured and provided with a little Mould, and watered and weeded as there is Occaſion. It may alſo be propagated by *Suckers*.

Culture.] The Culture is the ſame with that of the *Hyacinth of Conſtantinople*, which ſee.

The Plants are hardy but annual, and die as ſoon as they have produced their *Seeds*.

51. SNEEZE WORT, PTARMICA, *or* ETERNAL FLOWER.

The Deſcription]

THIS Plant is deſcribed by Monſ. *Liger* thus; From its Root it ſhoots forth woody Branches about a Foot and half high, covered with a Sort of Wool; the Leaves are of a *whitiſh* Colour, ſmall, narrow and hairy. At the End of the Branches grow the Flowers which reſemble Plumes of Feathers, divided at Top into *yellow* Stars. They are contained in a ſcaly Cup, are produced by the *Embryo*, and are ſhining, ſome of a Silver, and ſome of a Gold Colour. This *Embryo* becomes a *blackiſh*, hairy, oblong Seed.

Way of multiplying, &c.] Theſe are to be ſown in the open Ground in *September* and *October*, and in Beds, after the Manner of *Marygolds*; and as ſoon as the Plants appear, they ſhould be watered, and are to be covered with ſome clean Covering to defend them from the Froſt, and uncovered when the Weather is fair; and in *March* or *April*, they are to be taken up to be tranſplanted and watered, which Watering muſt be continued as there is Occaſion to haſten their Growth.

The Flowers are of the largeſt Size, and uſed for Ornaments in Borders and other Plots in large Gardens.

Mr. *Carpenter* ſays, that the *French* make their Bouquets of theſe Flowers, to dreſs up and adorn their Altars with in the Winter time, when ſcarce any other Flowers are to be had; and they have an Art to tincture the *white* ones with *red*, *yellow*, *purple*, and other Colours.

52. SNOW.

MR. *Le Clerc* ſays; that ſome Parts of a Cloud which ſhould turn into Rain are ſometimes prevented by the Cold, and formed into a Conſiſtence, which we call *Snow*, which appears to be formed of watery Particles, from hence, that when it diſſolves, it turns into Water; ſo that we may eaſily conceive *Snow* to be made of watery Particles, hardened by Cold, and gathered into Flakes, in ſuch a Manner as to leave large Interſtices, between one another; which *Snow* is not tranſparent as the Water that produced it, becauſe its more rigid Particles, being huddled together by Chance, don't leave ſtrait Pores between one another, and ſo keep out the Matter of Light.

But when it happens that the Region of the Air under the Cloud is very cold, the Drops of Rain are congealed as they fall and come down in Lumps which are called *Hail*. And theſe Lumps are greater or leſs, according to the Bigneſs of the Rain-Drops of which they are form'd. And alſo theſe Lumps of Hail are alſo variouſly figured.

Another Author ſays of *Snow*, It has been obſervable, that many Parts are of a regular Figure, for the moſt Part being, as it were, ſo many little Rowels, or Stars of ſix Points, being perfect and tranſparent Ice. Upon each of which Points are ſet other collateral Points, at the ſame Angles as the main Points themſelves: Amongſt theſe there are divers others irregular, which are chiefly broken Points and Fragments of the regular ones. Others alſo by various Winds ſeem to have been thawed and frozen again into irregular Cluſters; ſo that it ſeems as if the whole Body of *Snow* were one infinite Maſs of Icicles irregularly figured; that is, a Cloud of Vapours being gathered into Drops, the ſaid Drops do forthwith deſcend, and in their Deſcent meeting with a freezing Air, as they paſs through a colder Region, each Drop is immediately frozen into an Icicle, ſhooting it ſelf forth into ſeveral Points. But ſtill continuing to deſcend, and meeting with ſome intermitting Gales of warmer Air; or by their being continually wafted to and fro, touching upon one another; ſome are a little thawed, blunted, and again frozen into Clumpers, or entangled ſo as to fall again in what we call Flakes.

Altho' Snow is firm Ice, and the Lightneſs of it is owing to the Exceſs of its Surface in Compariſon to the Matter contained in it, as Gold it ſelf may be extended in Surface, till it will ride upon the leaſt Breath of Air.

Mr. *Switzer* ſays, Snow may not improperly be ranked with Rain, being nothing but the Rain congealed by the Frigidity of the Air, but is ſuppoſed to abound with ſalifick and fertile Particles, as much, or more than Rain; however it is accounted more ponderous, and ſo ſinks deeper into the Ground than Rain does, and therefore is in ſome Caſes of more Benefit to planting; and therefore ſome lay Heaps of Snow round the Foot of their Foreſt-Trees, eſpecially in hot burning Lands.

53. SNOW DROPS, *or* WATER GILLIFLOWER.

THIS Plant is called in *Latin*, *Narciſſus Leucoium*, becauſe as to its Bulb it reſembles the *Narciſſus*, and as to its Flower, that of a *Leucoium*, or *Gilliflower*. They are called *Snow Drops*, becauſe they ſhew their *Snow white* Flowers ſometimes in *January*.

They are multiplied by parting their Roots. This is a fit Companion for the *Crocus*, as to its Height and Time of flowering; and it is uſual to plant them together. Their Culture is the ſame as that of the *Crocus*.

54. SOILS.

MR. *Switzer* ſays, That we generally meet with about ſix Sorts of *Lands*; three of which may be call'd poor, dry, hot Land, and three poor, cold Lands: As for middling good *Soils*, all Trees proſper very well in them; but cold, *clayey* Land is the worſt of any Land that can be call'd any thing like good Land for Trees, unleſs it be made better and drain'd.

If a Perſon is oblig'd to plant in very poor, *gravelly*, dry Land, it will be to no Purpoſe to plant any thing that is choice; for, as there is but a ſhallow Spit of Earth at the Top, ſo there is but a hungry, *gravelly* ſtarv'd Bottom, and ſo is only fit for ſuch Trees as are very free Growers; ſuch as the *Abele* and *Witch-Elm*, or the *Witch-Hazle*, which has proſpered well on ſuch Lands. Theſe Trees being free Growers in all tolerable Land, the Poorneſs of the Earth curbs the Licentiouſneſs of the Shoots: But it is not proper in ſuch Land to plant *Beech*, *Elm*, *Lime* or *Oak*.

As to a *ſandy, loamy Soil*, which is a dry Land, tho' in its Nature it is very hungry and poor, yet it has produc'd very large *Beeches* and *Hornbeam*; and on this Ground, he ſays, doubtleſs the *Abele, Beech, Witch-Elm* and *Witch-Hazle*, and *Hornbeam* will proſper, eſpecially when ſown.

A third Sort of *barren, dry Land*, (ſuch as he has ſeen in *Buckinghamſhire*) which is of very little Value, as being very ſhallow, and upon Rocks of Chalk, or looſe Stone, yet produces the Trees before-mention'd in a wonderful Manner: But he doubts whether they would ſucceed, if tranſplanted into ſuch Lands; therefore he adviſes to depend on nothing but ſowing them in ſuch: Or if they are taken out of the Woods, they ought to be full of Fibres. In this Ground, *Aſh*, *Beech*, *Witch-Elm*, *Witch-Hazle*, *Hornbeam*, &c. may be ſown, or if planted, it ſhould be with great Care, or in large Holes, or high-rais'd Banks.

Middling Lands, ſuch as good *Paſture*, *Wheat* and *Barley Lands*, will produce any Tree.

Of *wet Lands*, he takes Notice of three Sorts: Firſt, a *marriſh, boggy Land*; ſecondly, a *wet, ſpringy Land*, or *Gravel*; thirdly, a *cold Clay*. Upon the firſt of theſe grow the larger *Alders*, *Willows*, and ſeveral *Aquaticks*; and with theſe he mentions the *Elm*, as being properly of the watery Tribe.

Secondly, a *wet*, *ſpewy Gravel*, intermix'd with *Clay*, where the Springs by Percolation carry off the beſt Part of the Ground. In this, he ſays, *Abeles*, *Elders*, *Elms* and *Poplars* will proſper tolerably well.

Thirdly, a *ſtiff, rank, cold Clay* is not good for Trees, eſpecially if planted any thing large; for the Earth is ſo unmanageable as to rot the Fibres, before they can ſtrike to keep themſelves alive.

In ſuch Ground the Trees muſt be planted in Holes five or ſix Foot wide; and the Foot of the Tree muſt be planted level with the Surface of the Ground.

Mr. *Evelyn*, in his *Sylva*, has the following Account of what *Soil* ſuits particular Trees.

In a *black, fat Land*, will thrive the *Oak*, and all Sorts of *Cheſnuts*.

In *Boggy, drain'd Ground*, the *Alder*, *Aſh*, *Birch*, *Poplar* and *Willow*.

In *Chalky Ground*, the *Aſh*, *Beech*, *Elm*, *Juniper*, *Oak* and *Walnut*; but not the *Poplar*.

In *Clayey* Ground, the tougheſt *Oak* and *Poplar*; but not the *Abele*.

In *moiſt Clay*, the *Aſh*, the *Cheſnut*, the *Male* and *Witch-Elm*, the *white Sallow*, and *red Willow*.

In *very ſtrong Clay*, very few Trees will grow.

In *Corn-Ground*, moſt Timber-Trees, and all Kinds of Foreſt and moſt Fruit-Trees.

Craggey-Ground, *Aſh* and *Fir*, and the *Oak*, if from Seed, and not elſe.

On *Ditch-Banks*, *Aſh* and *Female-Elm*.

On *dry*, *poor*, *clear Soil*, the *Abeal*, *Black Alder*, *Holly*, *Maple*, *Poplar*, *Wallnut*; but not the *Willow*.

On *dry*, *rich Ground*, the *Beech*, *Cheſnut*, *Hornbeam*, *Lime*, *Oak*, *Wallnut*.

Dry, *ſandy*, *hot Ground*, the *Beech*, *Birch*, *Lime*; but not the *Elm* to any Purpoſe.

Fat Soil is excellent for *Limes*, and almoſt any Sort of Trees, if not dung'd; but if dung'd, and the Dung not well conſum'd, neither *Holly*, *Yew*, nor Foreſt-Trees will thrive.

Flinty Ground, the *Aſh*, *Beech*, and *Elm*, if ſown.

Gravel, if there be any Thickneſs of *Mould*, the *Aſh*, *Beech*, *Elm*, *Holly*, *Oak*, better than *Cheſnut*.

A *hungry Gravel*, only the *Abele*; not the *Aſh*, *Elm*, *Oak* or *Walnut*.

Gravel mix'd with *Loam*; the *Aſh*, *Elm*, *Oak*, *Walnut*, and almoſt any Tree but the *Aquaticks*.

Moiſt Gravel, the *Cheſnut*, *Elms*, *Engliſh*, *Dutch* and *French Fir*, *Oak*, *Pine*, *green Willow*.

55. SOLSTICE.

SOLSTICE is the Time when the Sun being come to either of the Tropical Points is got fartheſt from the Equator, and ſeems for ſome Days to be at a Stand before it returns back, which happens twice a Year in the *Summer* and *Winter*-Seaſons.

56. SUMMER-SOLSTICE.

SUMMER or *Æſtival-Solſtice* in thoſe Countries, which lie to the *North* of the Equator, is when the Sun enters the Tropick of *Cancer* on the eleventh of *June*, and makes the longeſt Day and the ſhorteſt Night.

57. WINTER-SOLSTICE.

WINTER or *Hybernal-Solſtice*, to thoſe who live to the *North* of the Equator, is when the Sun comes to the Tropick of *Capricorn*, which is on the eleventh of *December*, and makes the longeſt Night and ſhorteſt Day.

58. SOLOMON'S SEAL.

THIS Plant may be raiſ'd by *Seed*; but it is moſt commonly done by the Tops or Pieces of *Roots*. The Seed is ripe in *September*.

59. SORREL.

Different Sorts.] OF *Sorrel* there are ſeveral Sorts; but that which is call'd *French Sorrel* is the beſt; but of the *common* Sort, the largeſt is accounted the beſt for a Kitchin-Garden. Its Seed is ſmall, ſlick, and of a triangular Figure, ſharp-pointed at the End, and of a *dark Cinnamon* Colour.

Soil.] It delights in an Earth naturally good, or well improv'd with Dung.

Way of Increaſing.] It is to be increas'd either by *Seeds*, which are gathered in *July*, or *Plants*: If from *Seeds*, it may be ſown in any of the Months from March to *Auguſt*, nay in September, if the Weather prove ſo mild, that it grow big enough to reſiſt the Severity of the *Winter*, by that Time it comes. It may be ſown either in open Ground, or in ſtrait Rows or Furrows in Beds or Borders; and ought to be ſown very thick, becauſe many of the Plants periſh. It may be rais'd eaſily enough from *Plants*, which ought to be ſet at a good Diſtance, becauſe they are apt to grow large, and ſpread Abroad. It ought to be well watered and weeded; and after it has been cut down to the Ground, it ſhould once a Year be cover'd with a little Mould; and this is beſt to be done in the hot Months of the Year, which will add to it new Vigour.

As to that Sort, which from the Roundneſs of its Leaves is call'd *Round Sorrel*, (whereas thoſe of the other Sort are ſharp-pointed;) it is beſt multiply'd by running Branches, which will take Root in the Earth, as they run over it; theſe being taken off and tranſplanted, will produce thick Tufts; and again, theſe thick Tufts will produce Runners.

60. SOUTHERN-WOOD.

SOUTHERN-WOOD, is rais'd of *Slips*, planted any Time in *Winter*.

61. SOW-BREAD. *See* CYCLAMEN.

62. SPANISH-BROOM. *See* BROOM.

63. SPIDER-WORT.

SPIDER-WORT is of ſeveral Sorts; but only the *Italian* and the *Savoy* are proper to be cultivated. They are hardy Plants, and live and thrive in any Soil, but beſt in one that is moiſt. They flower about the Beginning of *June*.

64. SPINNAGE, *or* SPINNACH.

Different Sorts.] MR. *Bradley* ſays, There are two Sorts of *Spinnage*; the *round Spinnage*, and the *prickly* Sort, which differ in the Shape of their Seed according to their Names; but when they are boil'd, he finds no Difference in their Taſte.

Deſcription of the Seed.] The *Seed*, Mr. *London* deſcribes thus; it is pretty large, horned and triangular on two Sides, and its Corners are very ſharp-pointed and prickly, and it is like a Purſe of a *greeniſh* Colour on that Part which is oppoſite to thoſe pointed Horns.

Soil, and Way of Multiplying.] This Plant requires the beſt Ground; and Mr. *Bradley* adviſes, to ſow it the Beginning of *Auguſt* in ſome Place well expos'd to the Sun, that the Leaves may be large enough to cut for boiling in the *Winter*; and alſo in *March*, *April* and *May*, every Fortnight, to ſupply the Kitchin, 'till other Greens are Plenty; becauſe in the *Spring* one Crop will hardly laſt good longer than a Fort-a Fortnight, without running to Seed.

Mr. *London* adviſes, to ſow it either in open Ground, or in Furrows, in ſtrait Rows, in well-prepared Beds; and this ſeveral Times in the Year, beginning about the Middle of *Auguſt*, and leaving off about a Month after; and then the firſt will be fit to cut about the Middle of *October*, the ſecond in *Lent*, and the laſt in *May*. And if the *Autumn* prove dry, they may be watered ſometimes. Alſo in the *Spring* of the Year they may be ſown, as above directed.

Thoſe that remain after *Winter*, will run into Seed towards the End of *May*; and the Seeds may be gathered the Middle of *June*.

65. SPINE.

SPINE ſignifies a *Thorn*.

56. SPINOSITY.

SPINOSITY is *Thornineſs*, or having or full of *Thorns*.

67. SPINOUS.

SPINOUS ſignifies *Thorny*, or full of *Thorns*.

68. SPONTANEOUS.

SPONTANEOUS, ſo thoſe Things are called that grow of their own Accord.

69. SQUASHES.

SQUASHES are a ſmall Sort of *Pumpkin*, which are to be cultivated after the ſame Manner as *Pumpkins* or *Cucumbers*; which ſee.

70. SQUILLS *or* SEA ONIONS. *See* ONIONS.

71. STAMINA.

STAMINA are the little fine Threads or Hairs, which grow up within Flowers of Plants, encompaſſing round the Style, and on which the *Apices* grow at the End.

72. STAMINEOUS.

STAMINEOUS Flowers are *imperfect Flowers*, which want the fine coloured Leaves called *Petala*, and conſiſt only of the *Style* and the *Stamina*.

73. ÆTHIOPIAN STAR-FLOWER.

THIS Mr. *Mortimer* ſays is a beautiful Flower in the Month of *Auguſt*, but it ought to be defended from the vigorous Colds in Winter, by ſome Shelter, or elſe it muſt be removed into the *Green Houſe*. See *Star-Flower*.

74. STATUES.

STATUES and *Vaſes* contribute very much to the Embelliſhment and Magnificence of a Garden and extreamly advance the natural Beauties of it. They are made of ſeveral Forms and different Materials; the richeſt are thoſe of caſt Braſs, Lead gilt, and Marble; ordinary Sort are of common Stone or *Stucco*.

Among Figures are diſtinguiſhed Groups, which conſiſt at leaſt of two Figures together in the ſame Block; Figures inſulate or detach'd, that is, thoſe that you can go quite round; and Figures that are ſet in Niches, which are furniſhed on the fore Part only.

There are likewiſe Buſts, Termes, half length Figures; Figures half as big as the Life, and theſe bigger than the Life that are called *Colloſſal*, placed either on regular *Pedeſtals*, or ſuch as are more ſlender, tapering and hollowed, or on flat Plinths; not to mention the Figures, which ſometimes adorn *Caſcades*, as do alſo *Baſs-relievos* and *Mask-Heads*.

Theſe Figures repreſent all the ſeveral Deities, and illuſtrious Perſons of Antiquity, which ſhould be placed properly in Gardens

The River Gods, as *Naiades Rivers* and *Tritons*, ſhould be ſet in the Middle of Fountains and Baſons; the Gods of the Woods, as *Sylvanes*, *Fauns* and *Dryades*; in the Groves; *Sacrifices*, *Bacchanals* and *Childrens* Sports are likewiſe repreſented in *Baſs-relievo*, upon the *Vaſes* and *Pedeſtals*, which may be adorned with *Feſtoons*, *Foliage*, *Mouldings* and other Ornaments.

Figures and *Vaſes* are uſually ſet along the Paliſades in the Front, and upon the ſides of a Parterre; in the Nitches and ſinking of *Hornbeam*, or of *Lattice* Work made for that Purpoſe.

They are placed in Groves in the Center of a Star, or St. *Andrew*'s Croſs, in the Spaces between the Walks of a Gooſe Foot, in the Middle of Halls and Cabinets, among the Trees and Arches of a *green* Gallery, and at the Head of a Row of Trees, or Paliſades, that ſtand free and detach'd.

They are alſo plac'd at the lower Ends of Walks and Viſta's, to ſet them off the better.

Jupiter and *Mars* ſhould poſſeſs the largeſt open Centers and Lawns of a grand Deſign, elevated upon Pedeſtals, Columnal and other architectonical Works with their immediate Servants and Vaſſals underneath; *Jupiter* with his *Mercury*, *Mars* with *Fame*, and the reſt of their Attendants.

Neptune in his Chariot ſhould poſſeſs the Center of the greateſt Body of Water, whether it be Fountain, Baſon, or whatſoever of that Kind; and attended with the *Naiades*, *Tritons*, and his other Sea Attendants.

Venus ſhould be plac'd among the *Graces*, *Cupid*, &c. It may be proper to place *Apollo* with the *Muſes* in the Nitches; and *Minerva* with the *Liberal Sciences*, &c. and in all the leſſer Centers of a Polygonar Circumſcription.

The *Dii Minores* ought alſo to poſſeſs the Nitches.

Vulcan with the *Cyclops*, in a Center of leſs Note; and all the reſt of the Deities in their particular Places and Order. *Ceres*, *Flora* and *Pomona* to their ſeveral Charges; and the *Fauns* and *Sylvans* ſhould be plac'd in the more remote and rural Centers and Parts of the Wood-work.

Daphne, *Diana*, *Flora* and *Venus*, ſhould have their Places in the Flower-Garden.

75. STELLATE.

STELLATE - *Plants* are ſuch as have their Leaves growing on the Stalks at certain Intervals, in the Form of a Star with Beams.

76. STERIL.

STERIL ſignifies barren.

77. STERILITY.

STERILITY ſignifies Barrenneſs.

78. STOCK JULY-FLOWERS. *See* JULIANS, *or* GILLIFLOWERS.

79. STRAWBERRIES.

Various Kinds.] MR. *Mortimer* reckons the common *Engliſh Strawberry*, which is much improv'd by being tranſplanted from the Woods to the Garden; the *white Wood-Strawberry*, which is more delicate than the former; the long *red Strawberry*; the *Polonian Strawberry*; and the *green Strawberry*, which is the ſweeteſt of all, and the lateſt ripe.

Mr. *Bradley* mentions but three Sorts; the *great white* or *Hautboy-ſtrawberry*, the *Wood-ſtrawberry*, and the *ſcarlet*; the latter of which ripens much ſooner than either of the other two, eſpecially if it has had a good Expoſure, and a light Soil, which always contributes to quicken Vegetation.

The *great white* or *Hautboy-ſtrawberry* ripens next to the *ſcarlet*, and the *Wood-ſtrawberries* next to them; and will laſt a long Time, if they be kept ſhaded after they begin to ripen.

Mr. *Mortimer* mentions a Kind of *Strawberry* that has (not long ſince) been brought from *New-England*, which ſome eſteem the beſt of all, which is the earlieſt ripe of all *Engliſh* Fruit, being often ripe the firſt Week in *May*.

This laſt Sort are of the fineſt *ſcarlet* Dye; and are to be propagated from *Runners*, which are a Sort of Strings growing out of the Body of the Plant, which readily take Root at the Points or Knobs; and will be fit for Tranſplanting in two or three Months Time; tho' thoſe are the beſt to plant which ſhoot firſt in the Spring.

Way of Encreaſing.] They may be planted in Beds or Borders; and require good Watering. They proſper beſt on a moiſt Soil, or upon new broken up freſh Ground, or in ſuch Places whereon they have not grown before; but eſpecially on the Sides of *Melon*-Banks; where they have the Benefit of the Heat of the Sun to nouriſh them. They ſhould be planted in moiſt Weather, and in the Months of *May* or *September*.

If they are planted in ſingle Rows, they will bear well the next Year after they are planted, and much better than if they are planted thick together, as the common Way is.

But in Order to have *Strawberries* in *Autumn*, he adviſes, to cut away the firſt Bloſſoms they put forth, to hinder their bearing in the *Spring*, and that will cauſe them afterwards to blow afreſh, and bear in the latter Seaſons.

But to have ſome of them of a larger Size, he adviſes to cut them down to the Ground, as ſoon as they have done bearing; and to crop them as ſoon as they ſpire, 'till towards the *Spring*: And when you would have them proceed towards bearing, as you cut them to ſtrew upon them now and then, Cow-Dung dried to Powder, Pidgeon's-Dung, Sheep's-Dung, or freſh Mould, *&c.* And to water them as Occaſion ſhall require.

They ought to be ſtring'd once in two Years, and tranſplanted once in three or four Years.

Thoſe are the beſt, that are *red*, thoroughly ripe, and of a pleaſant Odour, being agreeable to the Taſte.

In Order to preſerve them over the *Winter*, and make them to come early, he adviſes, to ſhelter them from the Froſts with Straw, and beſtow new Mould on them.

Soil.] Mr. *Bradley* ſays, *Strawberries* love a *clayey Soil*; nor do they delight in any ſo much as that which inclines to *Clay*: And as an Inſtance of this, takes Notice of the great Profits made of them yearly by the *Hammerſmith* Gardeners, where the Soil is proper for making of Bricks: And adds, that it is in ſuch Land only that the Fruit is to be expected to be large, and in Abundance.

He gives an Account of the Method us'd by the *Hammerſmith* Gardeners, in the Propagation and Culture of *Strawberries*, to the Purpoſe following:

They firſt mix Horſe-Dung and Coal-Aſhes, and incorporate them well together; and this being done, they lay a good Quantity of it upon their Land, in Order to be digged or trenched in *February*; afterwards they lay up their Borders about three Foot wide, and plant the *Slips* (of what Kinds they pleaſe) upon them, at about eight Inches Diſtance; when they have done this, they ſet *Beans* for a *Summer* Crop; becauſe the *Strawberry*-Plants will not begin to bear Fruit to any Purpoſe 'till the next Year after; nor then to any Quantity, in Compariſon to what they will produce the Year after that, which will be the third Year after they were planted;

ed; and then if they are not prevented by ſome extraordinary Drought, they will bear a full Crop.

They alſo, when they lay up the Beds, plant *Currans*, *Gooſeberries*, *Roſes* or *ſweet Briar*, at the Diſtance of every five or ſix Foot, which not only is an Advantage in ſhading the *Strawberries*, but turns to good Account at the Market.

If the Crop thus manag'd be well weeded and water'd, if the Seaſon of their Bloſſom be dry, it is hardly to be imagin'd what Advantage they make of a Piece of Ground thus planted.

Beſides this, they clean them, and fling Earth among them, to ſtrengthen their Roots early in the *Spring*; and plant *Savoys* and *Cabbages* in the Alleys in the *Winter*, that the Ground may not lie too long unemploy'd.

A Spot of Ground of *ſcarlet Strawberries*, ordered after this Manner, he ſays, will hold tolerable good for five or ſix Years: Whereas thoſe of the *Hautboy* and *Wood* Kinds will require renewing once in three Years.

The *Wood-ſtrawberries* ſhould always be got freſh from the Woods; for if *Slips* be taken from the Garden, they are apt to degenerate.

But theſe Gardeners do not (as ſome do, in Order to make the Fruit large) practiſe the ſtringing them, or pulling off their Runners in *July*, where the Roots are weak, and eſpecially ſo as to leave all the Plants ſingle.

In Order to make them bear Fruit in *Autumn*, he adviſes, to cut down the *Leaves* and *Flower-ſtems* juſt before the Opening of the *Bloſſoms*; and ſays, that if this be done, they will ſhoot out afreſh, and produce ripe Fruit about *September*; as he knows by Experience.

In Order to have ripe *Strawberries* in *March*, the Way to procure them, is to plant ſome ſtrong Roots in Pots, and to put them on a Hot-bed in *January*; to let them have what Air may be convenient 'till they bloſſom; to give them at that Time moderate Waterings with Water a little warm; to defend them from Froſts and too ſharp Winds; and then you may expect Succeſs.

He adds, That he has made Plantations of *Strawberries* in *April* and *May*, with good Succeſs; and has gathered very good Fruit from them the ſecond Day of *June*.

80. STONE-CROP-TREE.

THE *Stone-Crop-Tree* is a beautiful *green*, but not common: It is rais'd by *Layers*.

81. STYLE.

STYLE of a Flower is that middle, prominent Part of a Flower of a Plant, which adheres to the Fruit or Seed, being uſually long and ſlender, whence it takes its Name.

83. STOVES

STOVES are Contrivances for the propagating, preſerving and ripening ſeveral Sorts of Plants and Fruits, chiefly Exoticks, by the Means of artificial Heat. They are diverſified according to the Ingenuity of the Artiſt; ſome of which have already been mention'd under particular Articles, as *Green-houſe*, *Heat*, *Ripening Fruits*, &c. But to theſe I ſhall add the following:

Mr. *Bradley* tells us, That the *Stove*, which was in the Year 1723 erected in Eſq; *Parker*'s Gardens, near *Croyden*, in *Surrey*, is ſuch, that it commands the Admiration of all that have ſeen it, by Reaſon of the Juſtneſs of its Architecture and good Contrivance; it being deſign'd as well to ripen ſome Fruits that have been ripened in other Stoves *here* as well as in *Holland*, as well as for the keeping of tender Plants during the Rigour of our *Winters*; and alſo the Reſtoring of ſick Plants, which is common to moſt Stoves; and alſo to make new Experiments on other Plants that have not been try'd.

For theſe Reaſons, it has been endeavour'd to make this Stove capable of being heated after a different Manner, in the different Parts of it; in Order to imitate (in ſome meaſure) the different Climates which may be regulated according to the different Heights of the *Thermometer*. In Order to this, it is ſo contriv'd, that it may be of Uſe in the *Summer*-Time by Means of Tanners-Bark only, and both Fire and Tanners-Bark may be us'd together in the *Winter*, or Fire alone.

He takes Notice alſo, That Mr. *Fairchild* having in the Year 1723 built a Stove for the moſt tender Plants, he has rais'd the Fire-Flues above the Surface of the Floor of the Stove, which he approves of, as done with good Reaſon; becauſe as thoſe Flues are not buried in the Earth, they will not raiſe Damps in the Houſe; but on the contrary, the Heat which proceeds from the Flues will rectify any Damps that ſhould riſe, and render it fit for the Plants by quickning its Motion; for by how much the more any Fluid is rarified, by ſo much the quicker it is in its Motion; and by how much the leſs it is rarified, by ſo much it is the ſlower, and nearer to a Stagnation; and may by extreme Cold become ſo denſe, as not to have any Motion at all, and become intirely fix'd.

And as the Temper of the Air is more or leſs hot or cold, or dry or moiſt, the Juices of the Plants are always more or leſs fluid: Tho' the Particles of Air are quicker in their Motion than the Parts of Water; yet the Air of our Atmoſphere is nothing but the refin'd Parts of Water rarified by Heat, which when they meet with Cold, are condens'd in ſuch Manner, as to be reſolv'd again into Water, and again this Water is fix'd into Ice, by a Cold that is more extreme; but then it may by Heat be again reſolv'd from that fix'd State into its firſt Condition.

84. SUBTERRANEOUS.

SUBTERRANEOUS, } *SUBTERRANEAN,* } is that which is under, or within the Surface, Bowels or Caverns of the Earth; or the hollow Places of the Earth, that lie under Ground.

85. SUCCORY. *See* ENDIVE.

86. SUCCULENT.

SUCCULENT Plants are ſuch as are full of Juice.

87. SUCCULENCY.

SUCCULENCY, Fulneſs of Juice.

88. SULPHUREOUS.

SULPHUREOUS is full of Sulphur.

89. INDIAN *or* VIRGINIAN SUMACH, RHOE, RHUS, *or* VIRGINIAN BUCKS-HORN TREE.

Deſcription.] THIS Plant is thus deſcrib'd by Monſ. *Liger*: Conſidering its Bulk, it is a Shrub that is tall enough, dividing it ſelf into ſeveral Branches, garniſh'd with oblong, broad Leaves, indented on the Edges, of a *reddiſh* Colour. At the End of theſe Branches grow Flowers in a round Form, which are compos'd of ſeveral Leaves. Out of the Cup of the Flowers there ariſe Stiles which become roundiſh Capſulæ full of Seeds, in the Shape of a little Kidney.

He directs, to plant it in Caſes fill'd with one half Mould, and one half Kitchin-Garden Soil, well ſifted; to place them in a ſunny Expoſure, and to give them frequent Waterings.

Way of Encreaſing.] It is encreas'd by *Shoots*, growing at the Foot of the Shrub, which, when they are cut off to be planted, ſhould have as much Root to them as can be, and ſet four Inches deep. They muſt be ſet into the Greenhouſe in the *Winter*.

90. SUMMIT.

THE *Summit* of a Plant is the higheſt Part or Top of it.

91. SUN.

THE *Sun*, (ſays a certain Author) may be accounted the *Parens Naturæ*, or *Primum Mobile* of all vegetative Motion.

The *Sun*'s attractive Virtue is very conſpicuous in the Exhalation of thoſe crude and unwholſome Vapours, with which the Earth is often infeſted; which, if they were ſuffered to continue long upon the Face of the Earth, would render it a miſerable Deſert.

The *Sun*, by ſubliming thoſe crude and hurtful Vapours, and their being rarified before their Deſcention and Diſtribution, forms them into Rain, which is of great Conſequence in Vegetation.

To this he adds the Attraction of Plants themſelves, which creates a kind of Emulation in them which ſhall grow the talleſt.

But that which the Ancients did uſe to attribute to Attraction, may now be very well ſolv'd by Pulſion. To apply which to the Matter in Hand: When the Surface of the Sea, *&c.* is divided by the Heat of the Sun, and the Power of the Air, their Aſcenſion through the Atmoſphere, either by the Rarefaction of the Air by the Sun, or otherwiſe by the Reſpiration of the Terraqueous Globe, which in this Caſe may be ſuppos'd to act like the Body Natural; or elſe that the Air being rarefied by the Sun-beams does, by the Gravitation of its own Body in general, force thoſe humid Vapours by Pulſion, upwards through thoſe Beams or Rays of Light, which are (as it were) ſo many Pipes or Tubes for their ready Paſſage, Aſcenſion and Conveyance.

Or if thoſe Vapours are convey'd by the Undulation of the Air in a perpendicular Manner, rather than a radiant one, thro' the Rays and Beams of Light, which ſoever of theſe Ways it is, the *Sun* is the principal Agent in this Buſineſs; and the whole Proceſs is either Attraction, Pulſion, or Reſpiration, forwarded by the virtual Power of it.

That the Rarefaction of Air, by Heat, is a great Help to Attraction or Pulſion, may be diſcover'd by the Fire-Engine made by Mr. *Savoury*, where we cannot ſay that the Water is either forced or attracted by the Heat, but that the Air that is in the Pipe is lightened by its rarefying Quality, to ſuch a Degree, that the *Æquilibrium* is loſt, and the Impulſe and Preſſure of the Air, which is without, forces the Water to that great Height that is ſeen in the Operation.

And ſo, if a little Scrip of Paper burning and fuming be put into a common Drinking-Glaſs, and it be turn'd up immediately, and put upon a Plate of Water, it ſeems as tho' it would ſuck it up into the Glaſs; when indeed the Truth of the Experiment is, that it is only the outward Preſſure, and the inward Weakneſs of the Air to reſiſt being purified by Heat: For if the ſame Glaſs ſhould be plung'd into a Baſon of Water up to the Foot of it; yet the Water that is in the Baſon would not enter into the Glaſs, 'till the Air, either having loſt its own Strength or rather inſinuated or incorporated it ſelf with the Water, loſes its own Strength; ſuch is the Force of Air.

But this may ſuffice, concerning what the Ancients call *Attraction*; which in many Caſes is ſolv'd by *Pulſion* or the preſſure and elaſtick Power of the *Air*, rather than by the attractive Power of the *Sun*.

It is ſufficiently prov'd by ocular Demonſtration, that the Vapours of the Sea, Rivers, Lakes, and all the Humidities of the Ground, are drawn up after this Manner. And that Heat is an Agent in this Operation, has been clearly prov'd by the Experiments of that Learned Naturaliſt, Mr. *Halley*; by taking a Veſſel of Water four Inches deep, and ſeven and nine Tenths in Diameter; which being warm'd to ſuch a Degree, as it might be ſuppos'd the Air might do it in ſome of the hotteſt Months, and letting it ſtand about two Hours Time, and weighing it, found it had evaporated near half an Ounce, altho' there did not appear any Reek or Smoke; nor did the Water ſeem warm, by dipping his Finger into it; from which it may be concluded, that out of that ſmall Superficies of the Water, ſix Ounces would be evaporated in the Space of twenty four Hours.

Upon this Suppoſition, every ten Square Inches of the Surface of Water yields in Vapour, per Day, a Cube Inch of Water; and each ſquare Foot half a Wine Pint; and every Space of four Foot ſquare, a Gallon; a Mile ſquare, 6914 Tun; a ſquare Degree, ſuppoſe of 69 *Engliſh* Miles, will evaporate 33 Millions of Tuns.

This will account for the *Caſpian-Sea* being always at a Stand, and neither waſting nor overflowing; and alſo for the Current ſaid to ſet always in at the Streights of *Gibralter*, notwithſtanding that thoſe *Mediterranean* Seas receive ſo many, and ſo conſiderable Rivers.

This Experiment has been carried yet farther by the *Oxford-Society*; who ſuppoſing a cubical Foot of Water to weigh 76 Pound, and this Foot containing 1728 cubick Inches, and divided in the 76 Pound, gives half an Ounce and 13 one third Grains, which is the Weight of a cubical Inch of Water; therefore the Weight of the 233 Grains is $\frac{233}{253}$, or 35 Parts of a cubick Inch divided by 38. Then the Area of a Circle, the Diameter of which is 7 Inches and upwards, is more than 49 ſquare Inches; which, if it be divided by $\frac{35}{38}$ Parts of an Inch, the Quantity of Water carried off in Vapours, the Product will be $\frac{35}{1862}$, or $\frac{1}{53}$ Parts of an Inch waſted in that Experiment.

This is a plain Proof of what a great Quantity of Water may be thus carried off, in great Dimenſions of Water, even enough to ſupply all Rains, Dews, &c.

But the *Sun*, beſides this, has a diffuſive Power, not to dwell on the Light it conveys to theſe ſublunary Regions, without which, the whole Race of Mankind muſt wander and grovel in the dark; for by its genial and cheerful Rays, it exhilarates the vegetable Part of the Creation, and makes Nature her ſelf to ſmile.

It has an Influence upon deep Grounds, by warming and cheering the Pores of the Earth, when dilated and ſodden by too much Wet; and puts the emulgent Fibres of Plants on ſeeking their Food.

It helps the Surface of the Ground, by attracting or diſpelling the Vapours, which would otherwiſe make it noxious. But more particularly, it warms and heats the Ground; and by its powerful Influence, contributes to diſſolve the latent Salts, and prepare them for being ſuck'd in by the Fibres of Plants, which by the ſame genial Force, are in Action to ſeek out for their Food. The *Sun* alſo exhales all ſuperfluous Moiſture; and by its vital Heat comforts the dilated Pores.

The *Sun* diffuſes the early Dews, which, if they lay too long on Plants, would rot rather than refreſh them. It alſo preſſes them into the Nerves and other analagous Parts of it. This influential Power operates on the Boughs, Branches, Leaves and Fruit. The Air is alſo qualified by it; which otherwiſe, by its Frigidity, would ſtop the very Courſe of Nature. And indeed, it would be difficult to inſtance any thing in the whole Cycle of *Botanology*, that does not participate of a Share of this virtual and diffuſive Good.

92. SUPERFICIES.

SUPERFICIES of the Ground, &c. is the outward Part or Surface of it.

93. SURCULOSE.

SURCULOSE is full of Shoots, Slips or Twigs.

94. SURCULOSITY.

SURCULOSITY is Fulneſs of Shoots, Slips or Twigs.

95. SURFACE.

SURFACE is the bare Outſide of a Body, the Superficies.

96. SWEET BASIL. *See* BASIL.

97. SYCAMORE-TREE.

THE *Sycamore*-Tree, Mr. *Evelyn* ſays, is the *Acer majus*, one of the Kinds of *Maples*: He eſteems the *German Sycamore-Tree* much before ours.

Soil.] They will grow in almoſt any Sort of Land; and may be planted where other Sorts of better Trees will not proſper ſo well; but thrive moſt in a dry, light Soil, in which they will thrive very much.

Propagation.] The Way to multiply them, is either by the *Keys* as ſoon as they are ripe, which being ſown, come up the firſt *Spring*; or of *Suckers*; from the *Roots*, or by *Layers*.

They are to be order'd like other Nurſery-Trees; and when they are large enough, may be tranſplanted out for Walks, &c.

They may be tranſplanted of any Size; for they will bear Tranſplanting very well; and when they are tranſplanted, they may either be headed, or only trimm'd up the Side-Boughs, which latter (where they do not grow too ſmall and tall) is the beſt Way.

They are not accounted ſo good for Walks, or near fine Gardens; becauſe they are apt to foul them by the falling of their Leaves ; and becauſe the Leaves hang upon them the leaſt while of any Tree ; and beſides, a Honey-Dew, which hangs upon their Leaves, is apt to breed Inſects.

Mr. *P. Colliſon*, in a Letter to Mr. *Bradley*, acquaints him, That in his Journey along the Sea-Coaſts of *South-Wales*, he obſerv'd the *Sycamore-Tree*, or *great Maple* ; which he is of Opinion is very good to defend fine Seats that lie expos'd to the Fury of the Weather on the Sea-Coaſts, it growing upright, ſtanding firm, and arriving to a great Magnitude, tho' in the moſt expos'd Situation.

He adds, That a particular Inſtance of the great Service, Benefit, and Beauty of this deſpiſed Tree, is at the Seat of the Lord *Manſel*'s, at *Morgam*, near the Sea ; where his Garden and fine Orangery is defended by a ſtately Grove of this Tree ; and on another Side by a beautiful Row. And that he was told by the Gardener, That, after Tryal, theſe Sort of Trees were found to ſucceed beſt, and even to thrive in a Tempeſt.

98. SYLVATICK.

SYLVATICK ſignifies belonging to Woods or Foreſts.

99. SYRINGA, *or* PIPE-TREE.

Deſcription.]

THIS Plant is thus deſcrib'd by Monſ. *Liger* : It is a Shrub that from its Root ſhoots forth knotted Stalks, dividing themſelves into Branches garniſh'd with fine, *green*, broad oblong Leaves, a little indented on the Edges, plac'd one againſt the other, and pointed at the Ends. At the Extremities of theſe Branches, grow round Flowers, compos'd of ſeveral Leaves. Out of their Cup riſes a Style, which becomes a Fruit like a Top, which ſticks to the Cup, and opens into four Parts, and is divided into four Cells full of Seeds.

Soil.] Monſ. *Liger* ſays, it delights in a ſubſtantial Soil, in moiſt and ſhady Places ; and ſhould be dug three Times a Year, to make it produce Flowers plentifully.

Way of Multiplying.] It is to be propagated by *Suckers*, taken from about the Root, which it produces very plentifully ; theſe are to be planted either in *March* or *September*.

It is to be multiply'd two Ways, by *Suckers* or *Branches*, with Part of the *Roots* ſplit off with them.

If they are multiply'd by *Suckers*, the Slips ſhould have a little of the old Wood at the End of them ; and they ſhould be ſet in a ſhady Place, and they will the ſooner ſhoot out the Fibres.

If they are rais'd by *Slips* with the *Roots* ; in Order to get them, make a Circle about the Foot of the Shrub ; and having thus laid the Roots open, take off the beſt with as much Root as you can.

Mr. *Bradley* ſays, the *Syringa*, if planted in a ſhady Place, will grow almoſt any where, and will ſhoot forth vigorouſly ; and being much expos'd to the Sun, will produce Flowers in great abundance.

In Pruning it, take off all the dead Wood, and that which is worn out, and that which is ill plac'd.

Mr. *Bradley* tells us, That the late Biſhop of *London* took Notice of two Qualities of this Plant, That the Leaves taſted like *green Cucumbers* ; and the Bloſſoms had the Odour of *Orange-Flowers*.

This Shrub is propagated both for headed Plants, and Wilderneſs Quarters ; and is often planted in Pots to adorn Chimnies. They produce Bunches of fragrant *white* Bloſſoms in *May* ; and continue blowing for ſix Weeks.

T A

1. TAMARISK.

THE *Tamarisk* is a Tree uſually planted for Variety and Pleaſure. It is to be rais'd either of *Layers*, *Slips* or *Suckers* ; it grows tall and large, and is worth propagating, by Reaſon of its Aptneſs to be ſhorn and govern'd, like the *Cypreſs* and *Savin*. It loſes its *Verdure* in ſome Part of the *Winter* ; but quickly recovers it again.

2. TANNERS-BARK.

MR. *Bradley* ſays, The Heat of *Tanners-Bark* is moderate, gentle, and of long Laſting, which probably may be from its partaking of a large Share of Richneſs from one of the ſtrongeſt Vegetables, the *Oak*, and from one of the ſtrongeſt Animals, the *Ox* ; and theſe two powerful Ingredients fermenting gently in the *Bark*, may be a Means of nouriſhing the Plants, whoſe Roots are plung'd into it.

And notwithſtanding the Roots are in Pots ; yet it is certain, that ſuch Nouriſhment may either be receiv'd by the Holes that are at the Bottoms of the Pots, or elſe the Earth, of which the Pot is compos'd, may eaſily imbibe the Moiſture in the Body of the *Bark* ; for that Pots are porous enough to receive any Moiſture or Humidity : And if ſo, the Roots may have as much Nouriſhment as they want.

The *Tanners-Bark*, he ſays, is of extraordinary Uſe in cauſing Plants to ſtrike Root quickly ; and in as much as there is little or no Steam ariſing from it, the Leaves of the Plants will not be endanger'd, as thoſe frequently are which are ſet upon Hot-beds made of Horſe-Dung.

It is alſo to be obſerv'd, That when *Tanners Bark* is juſt taken out of the Vats, it is ſubject to heat with Violence, and grow mouldy on the Top, and then it loſes its Heat quickly ; but when the *Bark* has been out of the Vats about a Fortnight, it is the fitteſt for Uſe, and then it will heat gently and gradually, and continue its Heat a long Time.

As to the Manner of making Hot-beds with *Tanners-Bark*, you will find the Method made

Uſe of by the ingenious Mr. *Telende*, at Sir *Matthew Decker*'s, for the propagating the *Anana*, you may ſee under the Article *Anana*, in Letter *A*; or *Pine-Apple*, in Letter *P*; and *Hot-Beds* in Letter *H*.

Mr. *Bradley* offers ſome Hints to prevent ſome Miſtakes which may probably happen to ſome who may judge raſhly of *Tanners-Bark*, ſuppoſing it to be capable to warm a large Body of Air above it, to the ſame Degree that the Body of *Bark* is warmed below by Fermentation. But the exact Dimenſions and Method of the Hot-Bed Frames, and Quantity of *Bark*, *&c.* made by Mr. *Telende*, being ſtrictly obſerved by thoſe that have imitated them, have prevented them from falling into this Error.

He adds, That it is not in the leaſt diſcovered, that any Thing evaporates from the Body of the *Bark*; ſo that the Roots have all the Benefit of this Richneſs to themſelves. And where the Roots or Mouths of Bodies receive ſo much Nouriſhment, it is neceſſary in Nature, that there ſhould be ſome Diſcharge, either by the Growth of the Body, which is by explaining the Parts of the Plants, or elſe by filling the Veſſels fuller of Juices; or ſome other Way; which will be according to the Temper of the Air, where the ſame Body reſides. Therefore it is neceſſary to conſider the Quality of the Air, as well as the Diet of a Plant for its Welfare.

He adds, That a Repoſitory, which is regulated by Fire only, is neceſſary to ſet the Plants into in the *Winter*-Seaſon; becauſe the *Bark* of it ſelf has not a Power to warm a large Quantity of Air above it; and though it will warm the Roots of Plants that are ſet into it in the *Winter*, and ſet them a growing; yet the Leaves, or Parts of the Plants which are above Ground, being kept from Growth by the greater Cold of the Air above, they are not capable of receiving into them that Nouriſhment which the Roots receive from the Earth.

And for that Reaſon, when the *Bark* is made Uſe of in *Winter*, there ſhould be ſome other artificial Warmth to regulate the Air that is above; and to put the Leaves or Branches of ſuch Plants, whoſe Roots are plunged in the *Bark*, into a Diſpoſition to receive the Nouriſhment from them; or elſe reduce the Air above into ſuch a State, as may aſſiſt in feeding the Plants.

And this, he ſuppoſes, is only to be done by Fire; or muſt be an Air warmed by Means of Fire; and if this be done, the Space, which is above the Bed of the *Bark*, may be more extenſive than can be allowed otherwiſe.

Where theſe two Warmths concur, there is no Doubt but any Plant of the warmeſt Climate will grow there. And that it is to be remarked, That in the Frames of Mr. *Telende*'s contriving, there is above the Bed of *Bark* ſuch a Proportion of Air, that the Sun can ſufficiently warm it in the *Summer*-Time, in Order to the maintaining *Anana's*; but in the *Winter*-Time Recourſe muſt be had to other Help, as of Fire; becauſe the Sun is not then ſtrong enough to warm the Air above the *Bark*.

But as an Inſtance to the contrary, I laſt Year found, during the Summer Seaſon, that a hot Bed of *Tanners-Bark*, when in a good State of Heat, was capable of warming a larger Quantity of Air, even that of a Stove, which was nine Foot high from the Surface of the *Bark*, and found that Plants of the hotteſt Countries flouriſhed near as well as in their own Climate (as I was informed by ſeveral Perſons that had been Inhabitants in *Jamaica* and *Barbadoes*, many Years;) But as Mr. *Bradley* obſerves, I found (laſt Winter was a Twelve-month) that the Heat of the *Bark* was not capable of affording a ſufficient Warmth to Air the Houſe. The Heat of the *Bark* to the Roots put the Juices into a ſtrong Motion, and the Cold of the Air above condenſed them ſo that I found them ſhoot a little, and then would hang the Tops of their Shoots till at length they died: But as to the ſeveral Stoves built laſt Summer, in which there are Flues carried round the Pits for *Bark*: and whoſe Flues are made level, if not above the Surface of the *Bark*, to prevent the Flues from raiſing Damps, (which they are very ſubject to do— eſpecially from a ſtrong Bed of *Bark*, which is very ſubject of it ſelf to cauſe a Damp, eſpecially in the Winter Seaſon, when the Air is cloſely confined,) I am in great Expectation, by theſe Stoves, when brought to a right Pitch of Heat, and the building thoroughly dry, we ſhall be capable of keeping Plants from the hotteſt Parts of the World, and likewiſe of ripening the Fruits of any Sort that grows upon Shrubs, or will bear in a low Tree capable of being kept within the Limits of a Stove.

The *Tanners-Bark*, after it is done with for hot Beds, is no leſs uſeful in the Garden, it being one of the beſt Ingredients, for Flowers being mixt up with a freſh, light Earth, or the *green* Sward, cut and rotted, and mixt with the rotten *Bark*, wonderfully anſwers for almoſt any Sort of Flowers, and for Orange-Trees, there is no better Soil in the World, which will eaſily be ſeen by their Shoots, when planted in this Earth; and likewiſe the dryed *Bark* is very uſeful for the covering of Flower Roots in the Winter, in keeping out all Froſts, if laid two Inches thick, and preſerves the Roots mightily.

3. TANSEY.

TANSEY is an Herb that is rais'd by *Seeds*, *Slips*, or Parting of the *Roots* in the *Spring*. It is an Herb hot and cleanſing; but ought to be ſparingly us'd in cold Sallets, becauſe of its domineering Reliſh. Mr. *Bradley* recommends the keeping of it in the Houſe in the *Winter*; and recommends it highly from his own Experience as of a ſovereign Efficacy againſt the Gout in the Stomach; and adviſes, to boil a handful of it in half a Pint of ſtrong White-wine, and to drink the Decoction as hot as poſſible; and this, he ſays, he has always found to remove the Pain in leſs than a Quarter of an Hour.

4. TARRAGON.

THIS Plant, Mr. *Bradley* ſays, loves a warm Expoſure; and is increas'd by *Slips* taken from the *Root*, and planted in *March*. Mr. *Mortimer* ſays, it is encreas'd either by *Seeds*, or rooted *Slips*, or by ſetting of the *Tops*, which ſpring again ſeveral Times after they are cut. In Beds it ſhould be planted eight or nine Inches diſtant Plant from Plant, either in *March* or *April*. It requires but little Water in the drieſt *Summers*; and endures the *Winter*. It may be tranſplanted again in the *Summer*-Seaſon. That which is freſh and tender, is the beſt, eſpecially the Tops; and not thoſe Leaves that hang on the Ground.

5. TERGIFÆTOUS.

TERGIFÆTOUS-*Plants* are ſuch as bear their Seeds on the Backſides of their Leaves.

6. TERRASSES.

A *Terraſs*, Mr. *Switzer* ſays, is a ſmall Bank of Earth, laid out and trimm'd according to Line and Level, being neceſſary for the proper Elevation of any Perſon that walks round a Garden, to view all that lies round him; and this Elevation is ſo neceſſary, that thoſe Gardens that have them not, are deficient.

When *Terraſſes* are rightly ſituated, they are great Ornaments to their Gardens, for their Regularity and Opening, eſpecially when they are well built, and beautified with handſome Stairs and fine Aſcents.

Sometimes there are made under them *Vaults*, *Grots*, *Caſcades* and *Buffets* of *Water*, with an Order of *Architecture*, and a great many *Statues* in Nitches, and on the Goping above, are ſet *Vaſes* and *Flower-Pots*, orderly rang'd and diſpos'd.

There are ſeveral Kinds of *Terraſs-Walks*:

1. The great *Terraſs*, which lies next to the Houſe.

2. The *Side* or *Middle Terraſs*, which is commonly cut above the Level of the Parterre, *Lawn*, &c.

3. Thoſe *Terraſſes* which encompaſs a Garden.

4. Many that lie under one another, being cut out of a large Hill; and theſe are different one from another, in ſome Reſpect or other.

As to the Breadth of *Side-Terraſſes*, this is uſually decided by its Correſpondence with ſome Pavilion, ſome little Jettee of Building, but moſt of all by the Quantity of Stuff that is to ſpare for thoſe Purpoſes.

The *Side-Terraſs* of a Garden ought not to be leſs than twenty Foot, and but very ſeldom wider than forty.

As for the Height of a *Terraſs*, ſome allow it to be but five Foot high; but this he accounts extravagant, and others more or leſs, according to their Fancies; but the moſt exact Perſons never allow more than three Foot and an half; and in a ſmall Garden and a narrow *Terraſs-Walk*, three Foot, and ſometimes two Foot and a half high, are ſufficient for a *Terraſs*. Two Foot and a half and an Inch, and two Foot nine Inches is ſufficient for a *Terraſs* of twenty Foot wide. But when the Garden is proportionably large, and the *Terraſs* is thirty or forty Foot wide, then it muſt be at leaſt three Foot, or three Foot and an half high.

The nobleſt *Terraſs* is very deficient without Shade; therefore he recommends *Elm-Trees*: For no Seat can be ſaid to be compleat, where there is not an immediate Shade, almoſt as ſoon out of the Houſe; and there- re theſe ſhady Trees ſhould be detach'd from the Body and Wings of the Edifice.

All *Terraſſes* ſhould be planted with good *Oak*, or which is of quicker Growth, with *Elm*, rather than the moſt coſtly *Yew*, or *Holly* that muſt be always Clipping. The Diſtance of theſe *Elms* acroſs will be about twenty Foot; and they may be plac'd thirty Foot aſunder in the Lines.

7. TERRENE.

TERRENE, earthy, or compos'd of Earth.

8. TERRESTRIAL.

TERRESTRIAL, Earthy, or that belongs to the Earth.

9. TETRAPETALOUS.

TETRAPETALOUS-Flower, is one which is compos'd of only four ſingle Flower-Leaves call'd *Petala*.

10. THERMOMETER, *or* THERMOSCOPE.

A *Thermometer*, or *Thermoſcope*, is an Inſtrument commonly made of Glaſs, fill'd with tinged Spirit of Wine, or ſome other proper Liquor, deſign'd to meaſure the particular Degree of Heat or Cold of any particular Place; or of the ſame Place at different Times and Seaſons.

At the Bottom of this Inſtrument, there is a pretty large Ball of Glaſs fill'd with a ting'd Liquor; out of this Ball there riſes a Stem or Tube perpendicular, about three or four Foot long: To adjuſt the Degrees of which, the Ball may be put into Water when it is juſt beginning to freeze; and having obſerv'd the Height of the Spirit in the Stem, make a Mark exactly againſt it, and ſo graduate it afterwards up and down for Cold.

This ſhews the ſeveral Degrees of Heat or Cold in our Climate.

The *Thermometer*, which Mr. *Telende* makes Uſe of, has a Tube of about two Foot long, and is about the eighth Part of an Inch Diameter; and in this he has remark'd, that the Air is cold for his Plants when the Spirit riſes to fifteen Inches; that it is temperate at ſixteen Inches and a half; that the Air is warm when it riſes to eighteen Inches; and this is the Standard for his *Pine-Apple* Heat, it is mark'd for *hot Air* at twenty Inches, and *ſultry hot* at twenty one Inches and a half. But in the common *Engliſh Thermometers* theſe Degrees are differently mark'd; his *temperate* Air is about our *warm*, his *warm* Air our *hot*, and our *hot* Air is about the ſame as his *ſultry*.

He is of Opinion, no Inſtrument can be more uſeful to Gardeners who manage Hot-beds or Stoves, than *Thermometers*, being regulated according to theſe Obſervations: And therefore he has directed ſome to be made for both Hot-beds and Stoves, by which a Perſon may at once be appriz'd of the Degree of Heat under the *Line*, and of the ſeveral Degrees diſtinctly mark'd for the natural Plants of every Climate, from the Equinoctial Line to the fifty ſecond Degree of Latitude.

He adds, That in theſe *Thermometers* he will mark the Names, and alſo the principal Places, with their Degrees of Latitude and Summer-Heat, whether they lie *North* or *South* of the Equinoctial Line, and alſo the different Times of the *Spring* in ſeveral Countries. He mentions, that by this Means every Gardener may know when it is proper to apply his Heat in its full Force, and what Degree of Heat ought to be uſed for the Welfare of any Plant from any Part of the World. And theſe Inſtruments, Perſons may be furniſh'd with at Mr. *Thomas Fairchild*'s, at *Hoxton*.

Mr. *Patrick* ſays, the *Thermometer* ſhews, by Inſpection, the preſent Condition of the Air, and whether it be *hot* or *cold*; which Day in *Summer* is the *hotteſt*, and in the *Winter* which is *coldeſt*, or any Part of the Day; and from thence many uſeful Experiments have and may be made, *viz.* How much one *Spring* exceeds another in Coldneſs; which *Baths* are the hotteſt or coldeſt; and being held in the Hand of a Perſon in a Fever, or otherwiſe apply'd will nicely ſhew the Abatement or Increaſe of a Fever.

This *Thermometer*, here ſpoken of, he ſays, has fix'd to it a Scale of ninety Degrees, which are numbered from the To downwards, and alſo a mo

a

able Index fix'd to it. The Deſign of this is to ſhew how the Heat and Cold is chang'd, from the Time it was laſt look'd on, according to the different Degrees of Heat and Cold in all Latitudes; as by the Tryal of two *Thermometers* that have been regulated abroad, the one by Dr. *Halley*, in his late *Southern* Voyage, and the other by Captain *Johnſon*, in a Voyage to *Greenland*. The firſt has a Degree of Heat under the Equinoctial Line, and the other a Degree of Cold in eighty eight Degrees *North* Latitude.

Theſe Inſtruments, the *Barometer*, *Hygrometer*, and *Thermometer*, are recommended as uſeful to all Perſons concern'd in *Horticulture*, &c. The firſt diſcovers the Alterations of the Air, as to wet or dry, eſpecially if it be accompanied with an *Hygrometer*; which ſee in Letter *B*, and *H*: And the *Thermometer*, to ſhew the Condition of the Air, as to *Heat* or *Cold*.

The Method preſcrib'd to be us'd in keeping the Accounts or Obſervations made on the Alterations of theſe Inſtruments, is that which was us'd by the Honourable *Samuel Molyneux*, Eſq;

1. There muſt be a Book for the Remarks in all the twelve Months of the Year, which are to be made ſix Times every Day. At theſe Times you muſt obſerve: 1. How the Quickſilver riſes or falls in the *Barometer*.

2. What is the Alteration of the *Hygrometer*.

3. How the Spirits in the *Thermometer* riſe or fall.

4. From what Point of the Compaſs the Wind blows; and alſo with what Strength, according to the neareſt Gueſs that can be made.

5. Whether it rains, ſnows, hails, &c. and in what Quantity.

Every Leaf of the Book is to be divided into ſeveral Columns, the firſt for the Day of the Month and the Week; the ſecond for the Number of Inches and Parts of an Inch in the Tube of the *Barometer*, where the Quickſilver ſtands at the Time when the Obſervation is made.

The Second is to be for marking the Degrees which the Index of the *Hygrometer* points to, at the ſame Time.

The Third is for ſhewing the Number of Inches and Parts of an Inch where the Spirits ſtand in the *Thermometer* at the Time when the Obſervation is made.

The Fourth is for marking from what Point the Winds blow, and their Strength.

The Fifth is for noting the Quantity of Rain, &c. that falls, and what Diſpoſition the Clouds and Air have.

Take, for Example, the following Account of the ſecond of *June*, 1721.

Friday,

	Barometer.		Hygrometer, with its Diviſion and Parts.	Thermometer.	Wind.	Weather.
Friday, June 2. 1721.	I.	P.				
Morning at 9.	29	98	240	30	Eaſt. Briſk Gale.	Cloudy
Noon.	29	98	260 20	28	Eaſt. Briſk Gale, or Ditto.	Ditto.
Afternoon at 3.	29	98	280 20	28	Ditto.	Ditto.
Afternoon at 6.	29	98	300 20	27	Ditto.	Ditto.
Evening at 9.	29	98	315 15	28	Ditto.	Ditto.
Midnight.	29	98	320 5	28	Ditto.	Ditto.

According to this Method, a Weather-Book may be kept of the Country a Perſon reſides in; and by comparing the Motions of the *Quickſilver* and *Spirit* with the Weather, at ſuch Times as the Obſervations are made, a little Practice will enable a Perſon to give a good Judgment before-hand what Weather will happen.

11. Melon-Thistle, *or* Echinomelocactos. *See* Melon-Thistle, *under the Letter* M.

12. *The* Torch-Thistle, *or* Cereus.

Varieties, and Deſcription.] THIS Plant, Mr. *Bradley* ſays, differs from any other Tribe of Plants, in that it never bears any Leaves. He tells us, he has cultivated about ſeven Sorts of it, beſides thoſe other Kinds of *Torch*-like Plants; which have milky Juice, and are reckon'd of the Race of *Euphorbiums*.

He ſays, the *Torch-Thiſtles* are of two Sorts; ſome that grow upright to a good Height without Support; and thoſe that creep upon the Ground.

The erect or upright Kinds of *Torch-Thiſtles* have generally their Stems or Branches much larger than thoſe of the creeping Kinds; and the Spines upon their Edges very ſtrong, which differ in their Length and Colour as the Plants they belong to are different; and the ſeveral Kinds of this Plant in like Manner differ in their Colour and Number of Ribs or Angles

The Flowers of this Plant are radiated with *whitiſh Petals*, which do not open 'till the Fruit, upon which they ſtand, ſeems to be full blown.

They never offer to put out any Branches, ſo long as their firſt Stem can preſerve its Top from Damage; but as ſoon as ever that is crop'd or injur'd, they commonly put forth freſh Shoots near the Place where it was cut or broke off, about three or four in Number, which grow upright.

Way of Propagation.] He ſays they may be eaſily rais'd from *Cuttings*, by cutting a Stem into Pieces of ſix Inches long; laying them in the Sun 'till their Wounds are dry, and planting them in Pots of light Earth, in the Month of *May*, which is the beſt Time, or in any of the *Summer* Months; and every *Cutting* will ſoon take Root, if they be kept dry 'till they take Root; and then he adviſes to take away as much of the light Earth as poſſible can be, and to put to the Roots a Mixture of the Rubbiſh of old Walls with about one third Part of ſandy Soil, and ſome ſmall Pieces of Free-ſtone among it: And the Reaſon, he ſays, why he does not adviſe to plant them in this Mixture at firſt, is becauſe the Roots will more readily form themſelves in the other Earth.

When theſe Plants begin to grow, they will put out little Buttons near their Tops, which will after produce ſo many Stems, except that *Cutting* only which was the running Top of the Plant, and that will ſhoot upright. When the little Stems are grown to the Length of four or five Inches, you may cut them, dry them in the Sun, and plant them like the others.

Sometimes, he ſays, the *great, upright Torch-Thiſtle* will continue growing in one Stem, 'till it be near twenty Foot high, without putting forth any Buds but thoſe that are for Bloſſoms.

Soil, &c.] He adds, That this Plant will thrive better in a plain, ſandy Soil, than in the Mixture he has preſcrib'd for the others of this Tribe, and will bear more Water in the *Summer*, and is not ſo hard to be kept as the others, and is eaſy to be preſerv'd in the *Green-houſe*.

The *Creeping* Kinds of *Torch-Thiſtles*, he ſays, have their Branches differently ſhap'd; and that one Sort pretty common in *England* has triangular Branches, and another has its Sprouts divided into ſix or ſeven Angles; and both of them have their Edges adorn'd with ſmall tender Spines, ſet together in the Form of Stars. As to the Flowers of the firſt Sort, he ſays, he had never ſeen; but the latter has bloſſom'd in *England*, which he queſtions whether it would have done, had it not been by Accident, which was as follows:

A large Plant of it ſtood near a plaiſtered Wall, and ſtruck its Roots into it; and dying at its Roots Foot after, had for ſome Time no Nouriſhment but the Wall, and in that Condition bore Flowers. The Bloſſoms, he ſays, were very large, and radiated ſomething like the *Sun-flower*; many of the Leaves of a *yellow* Colour, and ſome towards the Middle, of a fair *white*. This Flower grew upon the Top of the Fruit, like thoſe of the *Indian-Fig*, and when it opened, was very well ſcented, but ſoon decay'd.

As for the Manner of Planting theſe Plants, he directs, That it be done as he has directed for the Planting of *Aloes*, upon a little Riſing or Hill in the Middle of the Pot; becauſe they can hardly bear Water. And after they are planted, that they ſtand abroad about twenty Days, and be put in a Hot-Bed, or elſe they will be apt to ſhrink.

During the *Summer*-Months, you may now and then give them a gentle Refreſhment; but he thinks it not adviſeable to give them any Water from the Middle of *September* 'till *May*; but to let them have the open Air in the *Summer* (eſpecially after Rain) as much as you can give them; becauſe it is that they chiefly feed upon, as may be gather'd by their putting out long Fibres from their Branches at ſuch Seaſons.

He adds, That theſe Kind of Plants come from thoſe Parts of *America* that are near the Equinoctial Line, and therefore are not ſo hardy as *Aloes* are, and for that Reaſon ſhould not only be hous'd in *Winter*, but ſhould be ſet in warmer Places, and kept longer there than they are any where.

13. THLASPLI'S. *See* CANDY-TUFTS.

14. GLASTENBURY-THORN.

THE common Hiſtory of the *Glaſtenbury-Thorn*, is, that it was brought into *England* by *Joſeph* of *Arimathea*; being a Staff of the Thorn-wood, which was ſet in the Ground at *Glaſtenbury*, on *Chriſtmaſs-Day*, where it immediately took Root, budded and bloſſomed, and has continued ſo to do ever ſince, upon *Chriſtmaſs-Day*. This is the Notion that ſome ſuperſtitious People have of it, who eſteem it as a Miracle. But Mr. *Bradley* tells us, That if it were true that the firſt Plant of it did grow at *Glaſtenbury* from a plain Staff or Twig, without Root or Branch, yet there is no Miracle in it, nay tho' it ſhould have been taken from the Tree ſix Months before: For, that he himſelf has often cultivated Plants in as bad a Condition, which have been taken from the Tree ſix Months, and notwithſtanding, they have grown very well; nay, that ſome Stakes of a *Willow* will do the ſame.

That as to its always bloſſoming on *Chriſtmaſs-Day*, and the Flowers only appearing on that Day; it is the Nature of the Plant to begin Bloſſoming in *December*; but yet there is no Miracle in its Bloſſoming then, it has no more in it than all other Plants have, which are brought from foreign Parts, which are always diſpos'd to bloſſom at the Time of the natural *Spring* of the Climate from whence they came, notwithſtanding the Oppoſition they meet with from our Seaſons.

And that it is very probable that this Plant was originally brought from ſome Climate where the *Spring* is about *December:* And as for its Bloſſoming exactly upon *Chriſtmaſs - Day*, the Miſtake of that is ſufficiently known; for that the Plant being now pretty well known, and cultivated in divers Places, it is found to be very apt to miſtake a Week or two in the Time of its Bloſſoming, according as the *Winter* has been more ſevere or mild: And whereas it has ſometimes been in Bloſſom the Beginning of *September*, yet it has not budded at other Times 'till the Middle of *January*, tho' it ſeldom fails to flower about that Seaſon.

This Plant may be encreas'd by grafting it on the *White-Thorn* in *March*. See *Glaſtenbury-Thorn*, in Letter *G*.

15. *The* THORN-APPLE.

THIS Plant is call'd the *Thorn-Apple* from the Thorninefs of its Fruit; and it is call'd by the Botaniſts *Stramonium*.

Deſcription.] Of this Plant there are two Sorts, the greater and the leſſer, which Mr. *Mortimer* deſcribes thus: The greater Sort riſes up with a ſtrong, round Stalk, four or five Foot high; which is branched at the Joints with large, *dark green* Leaves, jagged about the Edges; at the Joints grow large, *white* Flowers, in the Shape of a Bell; theſe are ſucceeded by large, round, *green*, prickly Heads, which, when they are ripe, open into three or four Parts, and are full of *blackiſh*, flat Seeds.

The leſſer Sort differs from the former, in that the Leaves are ſmaller and ſmooth, rent at the Edges; and in that the Stalks have no Branches; the Flowers alſo are ſmaller, but more beautiful; the Heads leſs, but rounder, and more hardy than the others.

Monſ. *Liger* thus deſcribes this Plant: It bears large, broad Leaves, of a *dark green*, and pointed at the Top, which are faſtened to long Stalks; in the Middle of theſe riſes a Stalk about a Foot and half high, about the Thickneſs of a Finger, which branches out into ſeveral Boughs, each bearing a Flower in Shape like a Pipe, and indented in ſeveral Places. In the Cup of this Flower grows a Chive faſtened to the lower Part of it, like a Nail; this, in Time, becomes a round Fruit, with little Points, and divided into four Cells, full of flat Seeds, in the Shape of a Kidney.

Way of Propagation, &c. Mr. *Mortimer* ſays, they are common, and will grow any where; are rais'd of *Seeds*, and the *Roots* of both die in *Winter*.

Monſ. *Liger* ſays, It is an annual Plant, ſown thin in *March*; requires to be ſecur'd from the hoary Froſts; therefore as ſoon as it comes up, it ſhould be covered with Glaſſes, or ſome other convenient Covering. When it is grown ſtrong enough to be tranſplanted, it muſt not be pull'd up by the Roots, becauſe that would too much retard its Growth, but ſhould be taken up with the Spade; and as ſoon as it is planted, it muſt be watered, and muſt be frequently watered during the *Summer*, 'till the Flower falls.

This Plant is proper for a Border, either of a great or ſmall Parterre, or it will do well in Pots.

16. THUNDER.

MR. *L'Clerk* defines *Thunder* to be *a rumbling Noiſe in the higheſt Region of the Air, occaſion'd by the ſudden Inflammation of Exhalations.* This he explains and accounts for, to the Purpoſe following.

Beſides thoſe Vapours which are rais'd by the Heat of the Sun out of Water and moiſt Places, there are alſo a World of Particles which are carried off from *Sulphur*, *Bitumen*, *volatile Salts*, and other Bodies of the like Nature; theſe Particles fly about in the Air, either higher or lower, according to the various Degrees of their *Levity* or *Gravity*. And theſe are thoſe which are by Naturaliſts commonly call'd *Exhalations*.

Since it is evident, that there is a vaſt Quantity of *ſulphureous* and *bituminous* Matter all over the Surface of the Earth; and alſo that both Plants and Animals abound with *volatile Salts*, there is no Cauſe why we ſhould wonder, that the Air is fill'd with ſuch Particles by the Heat of the Sun.

Nor is it poſſible, but that they ſhould be driven about all over the Air; but it is not to be doubted but that they ariſe in greateſt Plenty from dry, Sun-burnt Places, and hang thereabout. And hence it is eaſy to account for all thoſe Meteors which are inflamed in the Air.

In all aerial Fires there are three Things obſervable:

1. That they are lighted without any human Means, and by ſome inviſible Way.

2. That they run about the Air in various Figures.

3. That ſome of them continue longer than others do; but yet they all of them vaniſh in a ſhort Time.

In Order to make a Flame or Spark appear, there is nothing more that is neceſſary, than that there ſhould be ſome Particle ſo whirl'd about in the Air, as to caſt aſide all the groſſer Matter, and play about in the moſt ſubtil Part of the Air. Now there are ſome Matters which are apter to be put into Motion than others; ſuch as the Parts of *Sulphur*, *Bitumen*, *Nitre*, *&c.* Therefore when a ſufficient Quantity of Matter of theſe Kinds are gotten together, it is no difficult Matter for one or two of thoſe Particles to be whirl'd about by the Heat of the Air; and when they are once inflam'd, to ſet Fire to all the reſt that are about it. As a Conſequence of which, it is obſervable, that thoſe aerial Fires are common in *Summer*, but more rare in *Winter*; and by how much the *Summer* is the hotter, the more common ſuch Fires are: And this ſufficiently ſhews, that the Matter of ſuch Fires is rais'd and inflam'd by the Heat of the Air, and the Impetuoſity of its Motion.

This may be demonſtrated by an Experiment made by the Preparation which Chymiſts call *Aurum Fulminans*. Gold being diſſolved in *Aqua Regalis*, and precipitated with Oil of *Tartar*, the Duſt which ſinks to the Bottom, after it has been dry'd gradually and without Fire, will afterwards be fir'd by a moderate Heat, and will go off with a Noiſe like that of a Musket diſcharg'd.

This Experiment may alſo be made at a leſs Expence, and alſo as effectually, by mixing three Drams of *Salt-Peter* with one Dram of *Brimſtone*, and a Dram and a half of *Tartar*, and beating them to a very fine Powder: This being done, the Powder will take Fire as readily as the *Aurum Fulminans*; but will not give quite ſo great a Crack.

Now if it be conſider'd, that the Particles of *Nitre*, *Sulphur*, and *Tartar* which flie in the Air, are much finer than thoſe of the Compoſition before-mention'd, it is eaſy to imagine, that they may be fir'd by a moderate Heat aloft in the Air, if they be mix'd according to the aforeſaid Proportion.

This Sort of Matter muſt be carried about the Air in various Figures, according as the Winds blow, and as it is greater or leſs in Quantity; and according as it takes Fire.

If the Fire begins at one End, and burns gradually, it is called a Lamp; but if a long Exhalation takes Fire at once, it is call'd a Dart: Sometimes theſe Exhalations are hurried one Way or other by the Stream of the Air, while they are in Flame; ſometimes they continue in the ſame Place, and then they are call'd Beams; at other Times the Clouds part, and the Sky ſeems to retire, which may be caus'd by the Wind; and a Flame will flaſh out at this Opening: When this happens, it is call'd a *Chaſme*.

When burning Exhalations have leſs *Sulphur* in them (which yields a paler Flame) than *Nitre*, *Bitumen*, or *Tartar*, they appear as *red* as Blood. Tho' this Sort of Inflammation may appear either by Night or Day, yet they will be more plain to be ſeen in the Night in the Abſence of the Sun, the prevalent Sight of which obſcures all other Light.

Thoſe, which are commonly call'd *Shooting Stars*, are but ſmall Exhalations in our Air, and therefore are not properly Stars.

Ignes Fatui [*Jack in a Lanthorn*, *Will in a Wiſp*, &c.] ſeem to conſiſt of a more greaſy Exhalation. It is evident, that *Oily* Subſtances, tho' they are eaſily lighted, yet they are not ſpent ſo ſoon as thoſe of *Sulphur* and *Nitre*.

Hence it may be learn'd, that all ſuch inflamed Exhalations muſt neceſſarily diſappear ſoon, becauſe the ſubtil Matter, of which they conſiſt, is ſoon ſpent. But as the Matter of them is not all alike, ſo their Continuance is not exactly the ſame. We may obſerve, that a Flame which is raiſed out of various Materials, will either laſt longer, or be extinguiſhed ſooner, according as they are compos'd.

Oil mix'd with *Bitumen*, or *Sulphur*, will flame longer than if mix'd with *Nitre*.

From what has been ſaid, it will be no difficult Matter to conceive how *Thunder* is produc'd: For, the Experiment ſhews, that Flame, which throws off the Air with great Violence, ſometimes occaſions a great Crack. And it being an eaſy Matter for Heterogeneous Particles to mix in great Quantities in the upper Region of the Air, and to be ſet on Fire by a moderate Heat; there is no Need to have Recourſe to any thing elſe, to explain the Cauſe of *Thunder*.

As for the *Noiſe* of *Thunder*, we may be ſatisfied by all Experiments, that it cannot be any otherwiſe produc'd, than by a ſwift and vehement Exploſion of the Air, which is forced every Way; and the Motion of it being continued to our Ears, ſtrikes the Tympana [Drums] of them; and this cauſes the Senſation we call Sound.

As to the *Noiſe* of *Thunder*, it is alſo obſervable, that it ſounds as if it paſſed through Arches, and was broken variouſly. The Reaſon of it is, becauſe the Flame is kindled among Clouds that hang over one another, and the agitated Air flies between them. Thus it may be obſerv'd, that when a Gun is diſcharged at a good Diſtance, the Inequalities of the Ground do cauſe it to ſound to us with ſeveral repeated and broken Reports.

It is alſo plain, that the Flame is the Cauſe of *Thunder*, becauſe moſt commonly the Flaſh is ſeen before the Crack is heard. There is not indeed ſuch a Diſtance between the Firing of the Exhalation, and the Concuſſion of the Air, as there is between the ſeeing of the *Flaſh*, and the hearing the *Thunder*. But the Reaſon of it is, That we ſee any Thing as it were in an Inſtant: But Sounds are convey'd to our Ears by a ſucceſſive Motion of the Air; and therefore more Time is requir'd to hear than to ſee.

From what has been ſaid before, it appears, *That Lightning is an enflam'd Exhalation, compos'd of* Sulphur *and* Nitre, *or ſome ſuch Matter, or of a Mixture of ſeveral Sorts together*. The Inflammation is ſometimes with a Noiſe, as in cloudy Weather, and ſometimes without, as in clear, which cauſes ſome Variety in it.

Sometimes it lightens without Noiſe, which is, when the Exhalation conſiſts of Matter ſofter than ordinary, which is not ſo ſoon kindled. If it conſiſts only of *ſulphureous* Particles, which are a ſofter Sort, they are not ſo apt to fire all at once, not give the Air ſuch a Concuſſion, as ſhall cauſe us to hear the Noiſe of it: But if there be many Particles of *Nitre* and *Tartar* mingled with the *Sulphur*, the former being harder, cauſe the whole Exhalation to burſt at once, with ſuch Impetuoſity as to rend the Air, and to make a vaſt Noiſe.

The Noiſe of *Thunder* is more diverſified in cloudy Weather, becauſe the Air is variouſly reverberated from the Clouds to us: But if there are no Clouds, the Air flows thro' the open Spaces to our Ears more freely and evenly: And it frequently lightens in ſuch Weather without *Thunder*; becauſe the Inflammation conſiſts only of *ſulphureous* Particles; and on the contrary, it often *thunders* in cloudy Weather without any Lightening appearing viſibly; becauſe it is intercepted by the Clouds.

Rain generally attends *Thunder* and *Lightening*, either at the ſame Time or ſoon after: And it frequently rains faſter after a Clap of *Thunder*; ſo that *Rain* ſeems to be the Effect of *Thunder*.

Thunderbolts.] When it thunders and lightens, there ſometimes falls a *Thunderbolt*. *This Thunderbolt is a moſt rapid Flame that darts out of the Clouds to the Ground, and ſtrikes through every Thing that is in its Way.* And it is obſerved to have the following peculiar *Phænomena*.

1. That it oftener ſtrikes upon high Places than low; as upon Mountains, Towers, Steeples, Trees, &c.

2. That it ſometimes burns People's Cloaths without hurting their Bodies.

3. That it ſometimes breaks their Bones, and at the ſame Time does not hurt their Fleſh or their Garment.

4. That it has melted or broken a Sword in a Scabbard without hurting the Scabbard; and on the contrary, has ſometimes burnt the Scabbard all over, and at the ſame Time done no Harm to the Sword.

From theſe Conſiderations we may conclude, That a *Thunderbolt* is an Exhalation, which is kindled of a ſudden, and is copious enough to be hurried down to us by the Winds.

Thunderbolts are moſt commonly darted aſlope through the Air; and this may be occaſion'd by the Winds, which ſeldom or never blow downright. And it is probable, that the Flame is beaten down by the Wind, and reaches the Ground before the Matter of it is quite ſpent.

And this may be the Reaſon, that for the moſt Part they ſtrike upon high Places; for as they fall obliquely thro' the Air, they often in their Way meet with Mountains, Towers, &c. And the Reaſon that the Force of their Flame is very different, is probably from the Difference of the Exhalations which form the *Thunderbolt*, the Bodies from which they are collected being *ſulphureous*, *bituminous* or *ſaline*; and from thence it may be, that it ſometimes burns Garments at the ſame Time that it paſſes over the Bodies, without doing them any Harm.

Sometimes it penetrates the ſoft Fleſh harmleſsly as to them, and yet breaks the hard Bones; as Gold and other Metals are diſſolv'd by *Aqua Regalis*, and *Aqua Fortis*, and in the mean Time the Paper ſhall not be hurt by them. And for the ſame Reaſon it is, that a Sword may be melted in a Scabbard, and yet the Scabbard remain intire. And ſo it would be, if they were both laid together in *Aqua Fortis*: Becauſe the acute Parts of the *Aqua Fortis* do not operate upon ſoft Matter, the Particles of which are branched, as they do upon harder Bodies, into the Pores of which they inſinuate themſelves, and diſſolve the Contexture.

Again, *Thunderbolts* are more common in *Summer* and *Autumn*, than they are in *Winter* and *Spring*, when they are very rare; for which, three Reaſons may be given.

1. That the Cold is ſo great in the upper Region of the Air in *Winter* and *Spring*, that it will not permit the Exhalations to take Fire.

2. That the Exhalations are fewer in thoſe Seaſons, becauſe they are kept from aſcending by the Cold; for they cannot ariſe in any Quantity without a conſiderable Heat.

3. The Air is ſo fill'd with Vapours and Clouds in the *Winter* and *Spring*, that all Exhalations are dilated, and therefore are not capable of being inflamed.

Alſo ſome Places are more obnoxious to *Thunderbolts* than others; and they are ſuch as ſend forth Plenty of Exhalations for that Purpoſe, and where they are not eaſily diſpers'd by the Winds. And thence in hotter Countries, where the Sun exhales out of the Earth all that can be exhal'd, *Thunderbolts* are more frequent than they are in Climates that are colder: So that in thoſe Places which are encompaſs'd with high Mountains where the Wind has not Acceſs to blow ſo freely, the Exhalations are kept together, and *Thunderbolts* are more common; but in ſpacious Plains, which are as it were ſwept by the Winds, theſe Exhalations are ſhatter'd and blown about.

17. THURIFEROUS.

THURIFEROUS ſignifies bearing or bringing *Frankincenſe*.

18. THYME.

Various Sorts.]

OF this Plant there are ſeveral Sorts; Mr. *Bradley* reckons the *Pot-Thyme*, the *Lemon-Thyme*, and a Sort with *variegated Leaves*, the *Maſtick Thyme*, and the *Marum Syriacum*, or *Cat-Thyme*.

Way of Propagation.] Mr. *Mortimer* ſays, *Thyme* is rais'd by *Seed*, which is very ſmall; and thoſe Plants or Stems of it, that produce ſeveral rooted *Slips* and *Suckers*, are parted, to replant into Borders, a Border of which is a neceſſary Ornament in a Kitchin Garden.

Mr. *Bradley* ſays, it is rais'd from *Seed*, ſown in *March* or *April*; or propagated from *Slips* planted in thoſe Months, and will grow any where. It will make very good Edgings, that will laſt ſeven or eight Years. That *Maſtick-Thyme*, and *Marum Syriacum*, or *Cat-Thyme*, which are frequently cultivated in Gardens for the Sake of their refreſhing Odour, muſt be planted in the warmeſt Parts of the Garden; and as for the *Cat-Thyme*, if it be in ſmall Quantities, it muſt be carefully defended from the Cats, who love to eat it, and are intoxicated by it; but he ſays, That he has made it his Obſervation, that the *Cats* do not meddle with it, where it is in great Quantities.

19. TOAD-FLAX.

Various Sorts.]

THERE are of this Plant ſeveral Sorts, which are deſcrib'd by Mr. *Mortimer* as follows: The *yellow flower'd Toad-Flax*, whoſe Roots are durable; for tho' the Branches die in the *Winter*, the Root will ſend forth new ones the *Spring* following. The *wild white flower'd Toad-Flax*, whoſe Leaves are broader than the common *Flax*, and whoſe Root will laſt many Years. The *ſweet purple flower'd Toad-Flax*, whoſe Root dies. The *Toad-Flax*, whoſe Root dies as ſoon as its Seed is ripe. The *yellow flower'd Toad-Flax* of *Valencia*; and the *brown Toad-Flax*, with *reddiſh* Floads.

They come up dry, and need but little Care in their Culture: Thoſe whoſe Roots do not die in the *Winter*, ought to be ſet together; and the reſt to be ſet with Seedlings in ſome Places open to the Sun.

They flower in *July* and *Auguſt*, and the Seed is ripe ſoon after.

20. TOBACCO.

MR. *Mortimer* ſays, *Tobacco* is rais'd of *Seed*, which is to be ſown in a good, warm Soil, ſhelter'd from the Winds, The *Seeds*, before they are ſown, are to be mingled with Aſhes, that they may be ſown the more equally. In *England*, it requires to be rais'd in a Hot-bed. In the Countries where it grows, when the Plants begin to appear, they lay Boughs, or other ſuch Things over them, to ſhelter them; and in the mean Time, while it is grown to have four or five Leaves, they prepare another Place to tranſplant it into, at two or three Foot Diſtance Plant from Plant. Once a Month, they hough the Weeds from about it. When it loſes any thing of its *Verdure*, or begins to droop, or is come to a ſtrong Scent, it is ripe: Then they cut it, and dry it in a Houſe upon Poles. The Roots left in the Ground produce another Crop; but not ſo good as the firſt.

Mr. *Bruſtard*, in a Letter to Mr. *Bradley*, informs him, That he has recover'd ſeveral Fruit-Trees, as *Dwarf-Apples*, *Cherries* and *Plums*, alſo *Cabbages* and other Garden-ware, after both Fruit and Plants had been blighted and began to wither, by a Water made with *Tobacco-ſtalks*; that he having watered the Trees with this Water, the Leaves and Fruit began in a ſhort Time to recover; and grow to their full Perfection. And as for thoſe that he did not water with the *Tobacco-Water*, he queſtion'd whether they would live to bear another Year.

He adds, That he had experienc'd the Benefit of this Water with great Succeſs for two Years, and had found it to anſwer beyond any thing elſe he had made Uſe of.

That he took the Hint from a Man who us'd to chew *Tobacco*, who by ſpitting upon a Frog and Toad, deſtroy'd them; and from thence he conjectur'd it was a great Deſtroyer of all Sorts of Vermin.

He infus'd ſix or ſeven Pounds of *Tobacco-ſtalks* in two Hogſheads of Water; but more may be added as Occaſion ſerves.

To this Mr. *Bradley* adds, That it has been a long Time practis'd with Succeſs, to deſtroy thoſe Inſects that infeſt Plants, by ſtrewing *Tobacco-Duſt* upon them, and by making a Fumigation of it under the Trees. And that he does not doubt but Water, in which the *Stalks* of *Tobacco* have been infus'd, will anſwer the End as well.

21. TOMENTUM.

TOMENTUM is that ſoft, downy Subſtance, which grows on the Tops of ſome Plants.

22. TRANSPLANTING TREES.

MR. *Mortimer* ſpeaking of Foreſt-Trees, ſays, The Trees which are beſt to be removed, are the ſmalleſt Trees, and thoſe that have been tranſplanted in *Nurſeries*, &c. But as there are ſeveral Occaſions for the Tranſplanting them larger, he accounts Trees of about ſix and a half, or ſeven Foot high, and five or ſix Inches in Circumference to be the beſt Size: But in Caſes of Neceſſity, Trees of very great Stature have been remov'd.

To remove large Trees, Mr. *Evelyn* propoſes the following Method: To make Choice of Trees about the Bigneſs of a Man's Thigh; to remove the Earth from about them; then to cut through all the Side-Roots, 'till the Trees may be by Force brought down on one Side; ſo that the Tap-Roots may be conveniently come at to be cut off with the *Ax*: Then to redreſs the Tree, and let it ſtand cover'd with the Mould from which it was looſened, 'till the next Year or longer; and by that Time it will have drawn new, tender Roots fit for Tranſplanting, when you may take it up at a fit Seaſon.

Or elſe you may, before the hardeſt Froſts come on, make a Trench about the Tree, as far diſtant from the Stem as you judge ſufficient for the Root, and dig it ſo deep as almoſt to undermine it, by placing Blocks and Quarters of Wood to bear up the Earth. Then to fill the Trench with Water, or at leaſt wet it ſufficiently, unleſs the Ground was wet before. Having done this, you are to let the Tree ſtand 'till a hard Froſt comes and binds the Earth firmly to the Roots, and then tranſplant it to the Place you deſign for it. The Pit you plant in it you may preſerve from being frozen, by laying on it Store of warm Litter, and ſo cloſe the Mould the better to the ſtraggling Fibres, and place the Earth taken out of the Pit about the Root of the new planted Tree. But if the Mould about the Root of the Tree is too heavy to be remov'd by any ordinary Force, it then may be rais'd with a Crane or Gin.

The beſt Times for Tranſplanting all Trees, except *Winter-Greens*, he accounts to be either *October* or *February*: But if the Soil be moiſt, he prefers *March*, that the Trees may not ſtand ſobbing all the *Winter*, to chill their Roots.

He ſays, he has tranſplanted ſome Sort of Trees at *Midſummer*, after the Manner following. He made Holes large enough to contain the Roots of the Trees to be tranſplanted, and pour'd *Water into* the Holes, and then *threw in the* Earth that had been taken out of the Holes, 'till it became a meer ſoft Sludge or Mud. Then the Trees being taken up with as much of their Roots as could be, and abated the Heads with the ſame Caution, he plung'd the Roots of the Trees into the Mud, and left it to it ſelf, only that he watered it every Day for two or three Weeks: And that Trees thus planted at that Time, have grown as well as thoſe that had been planted in *Winter*.

The common Rules of Tranſplanting.

1. Trees muſt be planted deeper in Ground which is light, than in that which is ſtrong; but ſhalloweſt of all in Clay Ground, and never deeper than they grew before they were removed. As for the Depth, ſix Inches may be ſufficient for the drieſt, and two or three for the moiſt. But then they muſt be ſupported againſt the Winds, and alſo ſhaded from the Heat of the Sun. The moſt proper Way to ſecure them, may be by Stakes, and raiſing a ſmall Hill about two Foot thick, and four or five in Diameter, about the Stem of the Tree; and in Order to keep it moiſt, and prevent Weeds from growing, cover the Hill with Stones, Tiles, or mungy Straw. But after they have lain ſome Time, they muſt be taken away, or elſe the Vermin, Snails and Inſects, which they produce and harbour, will be apt to gnaw and injure the Bark of the Trees.

Every Year you muſt abate the Height of the Hills, 'till they are levelled to the reſt of the Ground: And pull up the Weeds if any grow about them, or elſe they will draw away the Heart of the Soil, which ſhould nouriſh the Roots of the Trees.

Where Holes are digged for the planting of Trees, if the Soil be *Gravel* or *Sand*, mix *Clay* with it; but rather *Earth*, *Loam* or *Mud* with *Earth*, which are better, and fill the Holes again with it. If it be a *ſtiff Clay*, trench it with *Straw-Thatch Litter*, *Wood-Stack Earth*, *&c.* But you muſt take Care in planting the Trees, that the Roots of them do not touch any of theſe Mixtures, nor any Dung or Turf; but the Dung ſhould be laid rather round upon the Surface of the Earth, and digged in a little, and covered with Mould, to prevent it from being dry'd by the Sun.

You ought once a Year to dig about the Roots of the Trees, and dig down the Hills; and when you do ſo, you will find an Advantage in it.

He directs, to plant in a warm moiſt Seaſon, when the Air is ſerene, and the Wind gentle and *weſterly*; but never when it freezes or rains, or is miſty; becauſe ſuch Weather is apt to mould and infect the Roots.

If you can avoid it, tranſplant no Trees after *Michaelmaſs*, 'till there has been ſome Rain to moiſten the Ground; becauſe the Trees will riſe with leſs Labour, and make better Roots; the Roots being apt to break when the Ground is dry.

Large Trees may ſooner be tranſplanted in *October*, than ſmaller.

Thoſe Trees which have not been tranſplanted before, or thoſe which have, muſt have their Roots abated, if they go deep, or elſe you will be oblig'd to plant them too deep; but you muſt ſpare the ſmall fibrous Roots as much as you can, for they are thoſe which draw the moſt Nouriſhment to the Trees.

When you take up Trees, take up as much Earth about their Roots as you can; and having made the Holes to plant them in, let them lie open for ſome Time, for the Rain, Sun and Froſt to mellow the Earth before the Trees are tranſplanted into them.

When you take up Trees, take Notice how the Roots grow, and where you tranſplant them, and diſpoſe them in the ſame Order. Spread the Roots carefully, and plant the Tree to the ſame Aſpect that it grew before.

In the *Spring*, you ſhould rub off the Side-Buds to give a Check to the Exuberancy of the *Sap* in the Branches, and to cauſe it to run up to the Head.

You muſt defend all young Trees from the Wind and Sun, eſpecially thoſe that are of a tender Kind, from the *North* and *Eaſt* Wind, 'till the Roots are fixed, and they begin to ſhoot: This not being obſerv'd, has been the Cauſe of the periſhing of moſt Plantations in *Summer*-Time. In the *Winter*, the greateſt Danger is more to be feared from the Wet and Cold, in Conjunction one with another, than from the moſt ſevere Froſt alone. Trees ſhould alſo be defended from Cattle, and eſpecially from Sheep on Account of the Greaſe of their Wool, which is very prejudicial to Trees, by their only rubbing againſt them.

To preſerve Trees *from Winds and Cattle.*

The beſt Way is to impale them with three or four Quarter-Stakes, of a ſufficient Height, ſet either in the Form of a Triangle or Quadrangle, and faſtened one to another with ſhort Pieces above and below ; and you may ſtick Brambles in them.

If you will be at the Charge, you may pale them ; and this will not fret them, as other Trees are apt to be that are only ſtak'd and buſh'd.

But if the Trees are planted where they are in no Danger from Cattle, then a Wiſp of Straw ty'd about the Neck of a Tree with a Rope from the Neck of the Tree, to preſerve them from galling, and lightly ſtrain'd to a Hook or Peg in the Ground, will be ſufficient to ſecure them againſt the *Weſtern* Blaſts. And the Winds that blow from other Quarters ſeldom do much Miſchief. The Cords will laſt many Years, if they are well *pitch*'d.

If the Soil be good, you tranſplant them into, it is beſt not to head Timber-Trees at all, but to ſhred them up to one ſingle Bough ; but if it be a bad Soil, the Sap will ſcarcely run ſo high ; and in that Caſe it is better to head them ; and when they are ſhot out, to reduce the Head to one fine ſingle Branch ; and for that Purpoſe, you ſhould leave one of the moſt upright and thriving Boughs ; and if the Top happens to die, or the Tree meets with any Hurt from Cattle, ſo as to cauſe it to break out on the Sides, which hinders its Growth and Spring, then you ſhould prune off ſome Shoots, and quicken a leading Shoot with a Knife, at ſome Diſtance beneath where its Infirmity is.

But if in the *Spring* of the Year it ſhall appear to be in a very unlikely Condition, then you may cut off all cloſe to the Ground, and expect a new Shoot, which you ſhould nurſe up, by cutting away all ſuperfluous Branches.

If you would not have a Tree put forth Side-Branches, prune them up in *February* and at *Midſummer*, when all the Sap is in them ; cut off whatſoever Side-Branches it has put forth ſince *February*, and they will ſcarcely ever ſprout again.

The *Aſh-Tree*, the *Walnut*, and *pithy* Trees muſt not by any Means be headed when they are tranſplanted, eſpecially the *Walnut* ; and if there be Occaſion to lop off any of the Boughs, it ſhould be done where they will be leaſt expos'd to the Wet, which the Side-Boughs ſeem to be. And this ſhould be done late in the *Spring*, as about the latter End of *February* or the Beginning of *March*, that the Bark may the ſooner heal the Wound.

Mr. *Bradley* gives us an Account of a new Method of Tranſplanting of Trees with Safety, let them be of what Bigneſs ſoever, either while they are in Bloſſom, or with Fruit upon them.

The Holes for the Trees are to be prepar'd before the Trees are taken up, and the Earth which comes out of the Holes is to be made very fine, and put into large Tubs and mix'd with Water, 'till it is about the Conſiſtence of thin *Batter*: Then the Holes, in which the Trees are to be planted, are to be fill'd with this thus tempered Earth, before the earthy Parts have Time to ſettle, or fall to the Bottom.

The Advantage of this Method is, That Trees planted in this *Pap* have their Roots immediately incloſed and guarded from the Air; and the Seaſon diſpoſing every Part of the Tree for Growth and Shooting, it will loſe but very little of its Vigour; if Care has been taken of the Roots, in taking them out of the Ground, that but few of them have been wounded; and alſo that they have not been ſuffered to dry in their Carriage from one Place to another.

He ſays, that he ſaw the Advantage of tranſplanting Trees of all Sorts in Summer at Mr. Secretary *Johnſtoun*'s at *Twittenham*, that by his Directions *little Hedges* of ten Foot high were, with wonderful Succeſs, removed in *May*, *June* and *July*, and that there was but very little Sign of their having been removed; and that there were large *Apple-Trees* and *Pear-Trees* remov'd, which grew in great Proſperity: And that there had been eſpecially *Scotch-Fir-Trees* tranſplanted out of a Nurſery, the ſame Summer, which was a warm one, and they had ſhot about a Foot before thoſe that were left in the Nurſery begun to ſtir or move in their Shoots.

And beſides, there was this remarkable in this tranſplanting, that the Heads of the *Fir-Trees* were left on them, which in all Probability contributed to their Growth. And notwithſtanding it has been the common opinion, that theſe Sort of Trees could not be tranſplanted after they were grown to any tolerable Bigneſs; yet theſe Trees were almoſt thirty Foot high.

As for *Elm-hedges* there was a Neceſſity for cutting or pruning them, when they were tranſplanted, to put them into form; and the Orchard Trees were lopp'd that they might the more conveniently be carried; and yet notwithſtanding they produced very good Fruit the next Year; and probably would have produced much more, if all, or the greateſt Part of their Branches could have been left upon them.

The Succeſs which attended this manner of planting was a Encouragement to many to low the Example, and inconſiderately they practiſed with the *Pap* in Winter, and ſo their Expectations were fruſtrated.

For the Trees not being in that growing State in the Winter, that they were in the Summer, and neither had the Trees that Draught, nor could the Temper of the Air draw away the extraordinary Wet from the Roots, which was contained in the Pap, and ſo the Pap, which was about the Root, ſerved only to chill and rot the Root.

But as for ſuch Trees which are thus planted in the Summer, they are then full of fluent Sap, and their chief Refreſhment is Water, which will not be ſuffered to remain too long about them, either by their powerful Spirit of Growth, or the Warmth of the Air.

All Plants of the ſmaller Kinds, which are removed about this Seaſon, will ſtrike root in a Day or two, if they be removed with Care. And it is alſo highly probable, that large Trees will do the ſame in a few Days; whereas on the contrary the Roots will not renew themſelves in the Winter Months.

Mr. *Bradley* concludes, that in Conſideration of the Circulation of Sap, it is as neceſſary to preſerve the Veſſels of Trees as intire as in animal Bodies; and therefore tranſplanting Trees at that time it is not at all proper to cut off any of the Branches, or wound any of the Veſſels, if it can poſſibly be avoided, that the Sap may circulate the more freely, and that the Trees may be kept in better Heart, till they have renewed their Roots, which it is of abſolute Neceſſity to wound in tranſplanting them.

But as it cannot be avoided but ſome of the Roots of a Tree, nay and ſome capital ones too, muſt be cut or wounded; he thought it convenient to contrive to make a Plaiſter of a Mixture of Gums, to do over the wounded Parts of the larger Roots, and hinder the Air and Wet from penetrating too much into the Veſſels of the Roots. He alſo thinks it proper, if the Root be very large, to mark the Limb or Branch that correſponds with it, in Order to cut it off about a Fortnight after to the ſame Proportion; and to do it over with the Plaiſter, as the Root had been before.

This Plaiſtering the wounded Parts of a Tree, is of great Uſe, as well for bringing large and vigorous Shoots, as preſerving the Tree from Canker or the Rot; which will by little and little attack it, if the Mixture of Gums be not apply'd immediately upon the Cutting off of any Limb or Branch.

In removing Trees from one Place to another, great Care muſt be taken that the Roots do not in the leaſt grow dry; for if they do, a Failure on the Top of the Branches that do correſpond with them, will ſoon be perceiv'd, and it will require Time to recover it, and more or leſs according as the Failure is.

Mr. *Bradley* tells us, he has met with a Preparation, with which, if the Roots of a large Tree be anointed, it may lie out of the Ground a whole Day in the hotteſt *Summer*, and it will neither drop or flag a Leaf; and tho' common Soap will do for two or three Sorts of Trees, yet it does not agree with all, but is apt to canker the Roots of many.

If Trees thus planted be large or tall, they muſt be ſupported with Stakes; and as the Pap begins to harden, you ought to watch it carefully to prevent its cracking, which it will do, if you do not ſtir or break the Top of it a little with a Spade, and pour a little freſh Water and Earth over the Hole, and cover it with ſomething; *green Turf* is the beſt, but *Fern*, *&c.* may ſerve.

As for ſmall ones, as *Currans*, *Gooſeberries*, and ſuch like, and all flowering Shrubs, the principal Roots which happen to be cut, while they are taking up, muſt be dreſt with the Mixture of Gums; and then you muſt plunge their Roots immediately into a Veſſel of Water, that they may be convey'd the freſher to the Place, where they are to be planted. Then having the Holes made ready, they are to be fill'd with Water and fine Earth well ſtirr'd together; and the Trees are to be planted in the Pap, immediately filling up the Holes with more Water and Earth.

This Method of Tranſplanting *Currans* and *Gooſeberries*, he ſays, he has for ſeveral Years practis'd in *May*, *June*, *July* and *Auguſt*; and they never did fail both to carry their Fruit and ripen well the firſt Year, and alſo to grow with Vigour.

Thoſe which are planted after this Manner, do not ſtand in Need of being watered after they are once ſettled, for they preſently renew their Roots; whereas thoſe Trees, that are tranſplanted about the *Winter* Months, will do but very indifferently for the firſt Year, and ſometimes do not do it at all.

If ſmall Plants are to be tranſplanted to a Place at any conſiderable Diſtance, he recommends the putting their Roots into Bladders of Water or Earth and Water mix'd to a Pap, which may be better; and being thus ſecur'd, they may be ſafely carried two or three Days Journey.

He adds, That by this Method and the Aſſiſtance of the prepared Gums, and alſo a viſcous Preparation, he has remov'd *Cherry-Trees*, *Nectarines*, *Peach-Trees*, *Pear-Trees* and *Plum-Trees*, with Fruit upon them, both *green* and ripe, ſome of which Trees had been train'd againſt Walls for more than ſix Years; and tho' they were convey'd and planted at above fifteen Miles Diſtance, they grew perfectly well, and preſerv'd their Fruit. By this Method Trees may be remov'd with Safety from *May* to *Auguſt*.

He adds, That in the Year 1723, he remov'd a Standard *Plum-Tree* at *Moleſey*, when it was in full Bloſſom, in *April*; and notwithſtanding three principal Roots were cut off, each as thick as a Man's Wriſt, and alſo a proportionable Number of

Boughs that correſponded with them, the Tree grew, and had Fruit upon it. But the Method of Moving a Tree in this State to a little Diſtance, differs very much from the Removing a Tree with Fruit upon it.

In doing of this Work, theſe three Directions following ſhould be minded.

Firſt, Great Caution muſt be uſed in applying the Mixture of Gums, *viz.* Not to uſe that Kind of Mixture to a *Stone*-Fruit Tree that is proper for a *Kernel* or *Pippin*-Fruit; and ſo on the contrary.

Secondly, Care muſt be taken to plaiſter the wounded Parts of the great Roots, as ſoon as each of them is got clear of the Earth. And if the Trees are to be convey'd to any great Diſtance, the Roots muſt be anointed as ſoon as poſſible can be with the *viſcous Preparation*; becauſe they will dry in a Minute or two in hot Weather.

Thirdly, If the Soil the Trees are to be planted in be a *Clay*, you muſt not make the Holes for the Trees in the *Clay*: For altho' you ſhould make them twenty Foot wide, and fill them with the beſt ſifted Earth and Water, the Trees will decline in the *Winter*; tho' they will not fail if you plant them in the *Summer*. See the Reaſon of this in the Article *Ranuncula*.

He adds, That he has, with equal Succeſs, tranſplanted *Elms* that were about thirty Foot high, and there has been no Appearance of their having been remov'd; but their Leaves have continu'd *green* and bright, and the Trees are at this Time in Proſperity, and have full Heads, which afford as much Shade ſince, as they did before their Removal: And that he is ſatiſfy'd, that there is not a ſound Tree in *England*, which is not too heavy to be tranſplanted from Place to Place, but may be tranſplanted with as much Safety as a *Cabbage*-Plant may.

But in Order to do this, there muſt be a due Time allow'd to do it in; and great Care muſt be taken in uſing the Mixtures and Preparations: And alſo much Care muſt be taken by thoſe that open the Roots; if all which were carefully perform'd by a ſufficient Number of Hands, a Garden might be compleatly furniſh'd with bearing Trees of every Sort of Fruit, and a Houſe encompaſs'd with a full-grown Wood.

The Mixture of Gums for the ſeveral Kinds of Trees, and the *viſcous Preparation*, he ſays, will be prepared by Mr. *Benjamin Whitmil*, Gardener at *Hoxton*.

23. TRANSPORTATION *of* PLANTS.

MR. *Bradley* ſays, In a ſhort Voyage they may be brought without any Earth about their Roots, if the Trees are of any Subſtance, as of an Inch or an Inch and half Diameter about the Stem. But before they are pack'd up, Care muſt be taken that they are very clear from Wet, or elſe there will be apt to be a Ferment about their

Bark, which will deſtroy them. And that he has known ſome Trees to have grown, after they have been without Earth for ten Months, and eſpecially *Orange Trees*.

And as to the Tranſportation of ſuch Plants that require Earth to grow in, while they are in a long Paſſage, he cannot give better Directions than Mr. *Catesby* gave, in his Letter to Mr. *Fairchild.* The Subſtance of which, is to ſend them in Tubs, and not in Baskets, becauſe the Baskets contribute much to their Miſcarrying : And that theſe Tubs be ſet in the Ballaſt, which keeps them moiſt, and moderately warm. That when they ſtand upon the Quarter-Deck, they are apt to be wet with Salt-Water; and require the greateſt Tendance from bad Weather, and are apt to miſcarry, notwithſtanding the greateſt Care.

And as for *Seeds*, the ſame Perſon uſed to put them into the Shell of a Gourd, and ſeal them up ; and being ſo put up, he had not known them to miſcarry, in ſeveral Parcels that he had ſent from *New - England.* As for another Method of Tranſporting *Seeds* ; ſee the Article *Seeds*.

He adds, That Plants, which are Natives of the hotter Climates, will thrive much better with us, if they come to us in grown Plants, than if they were to be brought in the *Seed*.

24. TRIPETALOUS.

TRIPETALOUS Plants are ſuch whoſe Flowers conſiſt of three Leaves called *Petala.*

25. TRIP-MADAM.

TRIP-MADAM is a Plant us'd in Sallads in the *Spring*, while it is young and tender ; and is encreas'd either by *Seeds*, *Slips* or *Cuttings*.

26. TUBE-ROSE.

MR. *Mortimer* ſays, the Stalks of this Plant grow about four Foot high, more or leſs. That the uſual Way of Planting them, is to do it in Pots of good Earth, well mix'd with rotten Dung, in the Month of *March* ; and then to ſet theſe Pots into the Houſe 'till *April* is paſt. They muſt be kept dry 'till they begin to ſpindle, and then they muſt be watered, and ſet into the open Air ; but the ſureſt Way to have them early, is to ſet them into a Hot-Bed. When they have done blowing, the Pots are to be laid on their Sides, to prevent Moiſture from coming to the Roots, and that the Plant may grow dry ; when the Leaves are dry'd, they muſt be taken out, and hung up in a dry Place.

27. TUBEROSE.

TUBEROSE or *Tuberous* ſignifies Knottineſs, or being full of Knots or Bunches.

28. TUBEROSITY.

TUBEROSITY, a Bunching out or Knottineſs.

29. TUBE ROSES, *or* TUBEROSES.

Deſcription.] THIS Plant, Mr. *Liger* ſays, is a Sort of *Hyacinth*, call'd the *Hyacinthus Indicus*, and is deſcrib'd by him as follows :

This Plant, from its Root ſhoots forth ſeveral Leaves, about half a Foot long, ſtrait and pointed at the End ; from the Midſt of theſe Leaves grows a Stalk about the Thickneſs of a Finger, and three or four Foot high, on the Top of this Stalk grow ſingle-leav'd Flowers, like *Lilies*, and in the Shape of a Pipe, notch'd in ſix Places, and reſembling a Bell ; at the Bottom of the Flower grows a Chive, which becomes a roundiſh Fruit, full of Seeds, of the ſame Colour with the Fruit.

Propagation and Culture.] The Manner of Cultivating them, he preſcribes as follows :

Tho' the *Tuberoſes* are multiply'd by *Suckers*, yet, he ſays, this is not to be practis'd but in hot Countries, ſuch as *Provence*, in *France*, and thoſe Places from which they were originally brought ; for that, tho' they are never ſo carefully manag'd, their Stems will neither grow ſo high, nor their Flowers be ſo numerous or beautiful, as thoſe that are brought from Abroad. And in Order to make Choice of them, he gives the following Directions : To pick out ſuch as are large, and by feeling them with the Thumb and Fore-finger ſuch as are firm ; and to run the Nail into the Side of the Roots, and if the Pulp be not *white*, to reject them, and chuſe thoſe that are ſo.

Then having fill'd Pots of a middle Size, with two Thirds of Mould, and one Third of Kitchin-Garden Earth, well mix'd together within two Inches of the Top ; to ſet the Roots an Inch deep in the Earth, and to fill up the reſt with pure Mould to receive the Heat of the Sun, which by this Means will more eaſily penetrate. This is to be done the latter End of *February*, or Beginning of *March* ; therefore, if we would have early Flowers, the Sun then not being, in temperate Climates, ſtrong enough to ſet them on Work, the Pots muſt be ſet in Hot-beds : After their great Heat is over, theſe Pots are to be buried in the Hot-beds up to the Brim, and then to be cover'd with Glaſſes ; and if the Weather be mild, and the Sun ſhine, they may be permitted the Benefit of the Sun through them ; but if the Weather be froſty or cloudy, the Glaſſes muſt be cover'd with Mats ; and they ſhould have a little Well-water given them now and then by Diſcretion. Thus they are to ſtand 'till the Air is grown mild.

If for all this, ſome of the *Tuberoſes* do not ſtrike Root, remove them into a ſecond Hot-bed, that has diſcharg'd its vehement Heat ; or place it in a Heap of Horſe-dung, moderately warm.

The *Tuberoſes* being thus rais'd, you ought to ſet them in the Places moſt expos'd to the Sun, ſetting them on Benches under a Wall, that they may have as much Heat as poſſible, by the Reverberation of the Beams of the Sun; and water them every Day at Noon, with Water that has ſtood 'till it is warm, in the Sun.

When they ſhoot out their Stems, and their Flowers begin to appear upon their Tops, ſupport them with Sticks ſtuck at the Foot of the Plants, and tie the Plants to the Sticks.

You may plant *Tuberoſes* in *May*, to have them in Flower in *Autumn*: Theſe muſt be planted in the moſt ſunny Expoſure, and watered as the others.

This Plant is not to be rais'd in the open Ground, in our Climate; becauſe the Heat is not ſufficient to make them grow as they ought.

The Flowers of a *Tuberoſe* blow ſucceſſively one after another; for which Reaſon it is a long Time in Bloſſom. The Flowers are very odoriferous, and perfume the Places where they are ſet; and are more proper to be ſet in Windows than Parterres.

30. TUBEROUS PLANTS.

TUBEROUS Plants, are ſuch as are full of Bunches or Knots.

31. TUBULOUS.

TUBULOUS ſignifies hollow, like a Pipe.

32. TULIPS.

Various Sorts.]

MR. *Bradley* divides *Tulips* into two Claſſes; the *Præcoce Tulips*, or early Blowers; and the *Serotine Tulips*, or late Blowers; and theſe again may be diſtinguiſh'd by their double and ſingle Flowers.

1. Then as to their *Colours*, they are diſtinguiſh'd into *Agates*, which grow ſhorter than the *Bagates*; the Flowers of theſe are vein'd with two Colours.

2. *Bagates*, which are the talleſt Blowers, and are commonly *purple* and *white*, *marbled*.

3. *Beazarts*, which have four Colours tending to *yellow*, and *reds* of ſeveral Sorts.

The Varieties of theſe are alſo diſtinguiſh'd by the Names of Cities, or ſuch-like Characters.

Tulips are uſually eſteem'd for the Beauty of their Colours, and the Strength and Height of their Flower-Stems, and that their Flowers be of the Shape of an Egg, without ſharp Points on the Top of their *Petals*; and above all, for their Novelty.

Monſ. *Liger* diſtinguiſhes them into the *Early*, the *Meridional*, and the *Backward*; which are alſo of different Colours; as, ſome Sorts are *white*, others are *red*, others *yellow*, and ſo of the reſt. Beſides, great Numbers of *Tulips* are variegated of different Kinds, and are thoſe that are moſt eſteem'd.

There are alſo ſome of the large Kinds, and ſome that are Dwarfs, ſome that have great

Leaves, and others that have ſmall ones.

Of the Beauty of Tulips.] He ſays, Fine *Tulips* have commonly ſix Leaves, three without, and three within; and the latter ought to be larger than the former.

Their Bottom ought to be proportion'd to their Top, and a flat Form is look'd upon to be more beautiful than a ſharp.

It is a good Sign when a *Tulip* has its Form and *Green* of a middling Bigneſs; and alſo when it has a requiſite Largeneſs.

When a *Tulip* opens with its Leaves turn'd either inward or outward, it is not eſteem'd any more than where its Leaves are too ſmall, or too thin: So that a *Tulip* is not to be eſteem'd, tho' it may appear fine at its firſt Opening; you muſt wait two or three Days before you can give a right Judgment of it.

A *Tulip*, the Cup of which is leaſt convex, is to be preferr'd before one that is a great deal ſo.

Among thoſe *Tulips* that are of the better Sort, thoſe are in moſt Eſteem whoſe Colours are *luſtrous*, and appear like *Sattin*; or of a Flame-colour'd *red* upon a *white* Ground; thoſe of *divers* Colours, with *Shadings*; and the *yellow* ſtrip'd with *grey*.

It is very common, to take great Notice of the Bottom of a *Tulip*, becauſe the Stripes which ariſe from thence, are generally of the fineſt Colours.

Every Colour in a *Tulip*, which is not blended confuſedly, and the Stripes are well ſeparated, looks agreeable to the Eye. In Order to the Perfection of a *Tulip*, the Thrums ſhould not be *yellow*, but of a *brown* Colour. As for the Chives, it matters not how they are.

Mr. *Bradley* ſays, That the beſt *Tulips* he has ſeen, were in *Holland*, and *Flanders*; but he believes, if we took the right Way of managing them, we might have as good as they.

Of Propagating them by Seeds.] Monſ. *Liger* directs, to gather the Seeds of *Tulips* in *Autumn*; and to ſow them from the Middle of *October*, to the End of *November*. And tho' probably they might ſucceed, if ſown in the *Spring*, yet the Production would be retarded, and the Flowers would not be ſo fair.

Beſides the natural Earth of the Garden, he adviſes, to take Bed-mould and mix it with the Earth; lay it on a Heap, and ſift it on the Bed deſign'd for the *Tulip*; let it not be above an Inch thick, and rake it even; then ſow the *Seed* as thin as poſſible: Then ſift enough of the ſame Mixture over it as will cover the *Seed*.

In *March* the *Seed* will come up; and when you ſee it appear, you muſt weed them, and water them in hot Weather; and they ought to ſtand in the Seminary two Years before they are remov'd; and after the firſt Stalks are wither'd, it may be well to ſift freſh Mould upon the Bed an Inch thick.

The cultivating them as before directed, much forwards their Flowering; but good

Flowers are not to be expected in leſs than five or ſix Years.

Mr. *Mortimer* ſays, the beſt Way to raiſe Variety of *Tulips*, is to ſave the *Seeds* when they are ripe; that is, when the Pods begin to open at the Top, and to cut them off with the Stalks from the Root; and to keep the Pods upright, that the *Seeds* do not fall out of them; then to ſet them in a ſunny Window, to compleat the Ripening of them, and to let them continue ſo 'till about *September* or *October* at the fartheſt; and then to ſeparate the Seed from the Chaff, and to ſow it in Boxes about half a Foot deep, in one of the foremention'd Months. Theſe Boxes ſhould be fill'd four Inches deep with the fineſt ſifted Mould, that can be procur'd, both light and rich, and rather ſifted in them, than preſs'd down of an equal Thickneſs: Sow the *Seeds* in this at about half an Inch one from another; then ſift on ſome of the ſame Earth over them, half an Inch thick.

If the *Seed* be ſown on Beds, he adviſes to empty them of their Earth four Inches deep, laying Tiles flat upon the emptied Places, and to ſift ſome of the fineſt Earth upon the Tiles, and order the *Seed* as has been before directed, as to that in Boxes.

In *March* you may water the *Seeds* a little.

The beſt *Tulip* to raiſe *Seed* of is generally eſteem'd the *Violet*-colour'd, ſtrip'd with *white*; but it muſt not be ſown on heavy Land.

He adviſes, to take up the Roots of each, every Year, 'till they flower, as ſoon as their Leaves are dry; and to keep them free from Moiſture, and alſo from being too dry, 'till the latter End of *Auguſt*; and then to ſet them again at wider Diſtances.

The third Year they may probably produce two Leaves, and if they do, they will flower; and after the firſt Year they may be ſet in a deeper Soil, and richer Earth. They will thrive beſt in a rich Soil; but will flower beſt in a barren one: You muſt, for ſome Time, obſerve the Change of Soil for them.

Mr. *Bradley*, in Order to raiſe fine *Tulips*, adviſes, That the *Flower-Stems* be let to remain upon the *Root*, and it will bring the *Seeds* to Perfection about *July*; and then, when the *Seed-Veſſels* begin to crack or burſt open, it will be proper to gather them, and to cut them cloſe to the Ground in a dry Day, and lay them in a dry Place 'till *September*, which is the propereſt Time to ſow them in; and if they are kept under Shelter, they will come up the *Spring* following.

The Roots will not be bigger than Corns of *Wheat* the firſt Year; but after they have appear'd above Ground the ſecond Time, they may be taken up out of the Pot or Caſe that they were ſown in, and be ſown or ſprinkled over a Bed of natural, well-ſifted, *ſandy* Soil, and then the ſame Earth ſhould be ſpread over them to the Thickneſs of half an

Inch: This being done, you may leave them to themſelves, only every Year adding a Covering of Earth, half an Inch thick, 'till they begin to blow, which will be about five or ſix Years after they were ſown.

He adds, he has known many fine *Tulips* rais'd by this Method; and that he once heard of a large Bed of *Seedling Tulips*, which were only of plain Colours, without Variegations; but that he thinks probably might happen from the Qualities of the Flowers from whom the *Seed* was procured.

But if it ſhould prove ſo, yet we need not deſpair, for that he ſuppoſes the Plainneſs of their Colour proceeds from a Strength of Nature; it being certain, that the Variegations of all Flowers are the Effects of Weakneſs, and Want of Nouriſhment.

For all thoſe who have cultivated thoſe Sorts of *Tulips* which are call'd *Breeders*, cannot but know, they are of plain Colours, and are always large, tall blowing Flowers; and from theſe *Breeders* commonly the Flowers of the greateſt Value (for their Stripes Sake) are produced; one of them (as they term it) now and then breaking into beautiful Variegations, or Mixture of Colours.

And notwithſtanding Gardeners do commonly reckon this Alteration of *Tulips* to be the Effect of *Chance*; yet he is of Opinion, that the two following ſervations will unfold the ſtery: There is a Man, near *Bruxelles*, in *Flanders*, who is noted for a little Spot of Ground, in which (as it is commonly reported) *Breeding Tulips* change themſelves into fine *variegated* Flowers, by ſome ſtrange Virtue; inſomuch, that Roots are brought thither from ſeveral Parts, to be educated and brought up for the niceſt Collections; and Money is paid for their Standing.

It is accounted a rare Thing in that Spot of Ground, if the firſt Year after they have been planted there, three in five do not break into Stripes.

But he is of Opinion, that this Alteration may be accounted for, if the Soil be examined, which is no more than common Rubbiſh ſifted, or at leaſt not a twentieth Part of it is natural Soil.

It is very evident, That ſuch a natured Soil muſt of Neceſſity impoveriſh the Roots which are planted in it; and of Conſequence the Flowers muſt (ſome Way or other) ſhew the Diſtemper of the Roots from which they proceed.

And to continue the Variegation, the *Tulips* are every Year taken out of the Ground, as ſoon as they have done Blowing; for if they were let alone always to remain in the ſame Earth, they would in Time become plain Flowers.

But the ſecond Obſervation that he has made, about the Striping of theſe Flowers, was in the Garden of a Gentleman not far from *London*, who had planted a Bed of *Breeding Tulips*; and the Year after, when they came to blow, there was a fine ſtrip'd *Tulip* at each Corner of the Bed, when none of the others were alter'd in the leaſt. This, he conjectures, happened in that there were four *Pyramid-Yews* growing at each Corner of the Bed, which *Yews* had exhauſted the natural Strength of the Sap about them.

A Perſon being provided with a good Collection of rare Flowers; he give this Direction for Planting them.

Of the Soil.] He ſays, That where he has ſeen the fineſt Collections of *Tulips*, which is in *Holland*, the Soil is naturally *ſandy*, and (as near as he can gueſs) about two Parts in three of *Sea Sand*, and one Third of *black* Earth. And that he has in this Soil ſeen *Tulips* of the *Bagget* Kind, which have bloſſom'd about three Foot high; and other Sorts proportionably.

Thoſe who are curious in *Holland*, always obſerve two Things in Planting *Tulips*.

Firſt, they plant all the forward Blowers in a Bed together, and when they plant the late flowering Kinds, they place the talleſt Sorts of them in the middle Line of the Bed, and ſet two Rows of the ſhorteſt Blowers on each Side of them.

The Time when they put theſe Roots into the Ground, is from the laſt Week in *Auguſt*, 'till the End of *September*, if the Weather prove fair; nor do they, after that, ſtand in Need of any Shelter 'till the Flower-Buds appear, which is in *March*, and then they require to be defended either with Mats or painted Cloth ſtrain'd upon Hoops, from the Blights, and the ſame Covering will ſerve to ſhelter the Flowers, when they are blown, from the ſcorching Heat of the Sun, and from Rain, either of which would ſoon ſpoil the Flowers.

They always take the Roots out of the Ground as ſoon as their Flower-Stems begin to decay, and dry them well, and lay them up in Paper 'till the Planting Seaſon comes again.

Mr. *Mortimer* ſays, That the Roots of *Tulips* do not want to be watered; but when they begin to flower, it is proper to ſhelter them with Tilts, eſpecially at Nights, to ſkreen them from the Sharpneſs of the Froſts.

You ſhould alſo tie up to ſmall Rods, which will juſt reach to the Flowers, ſuch as hang their Heads.

As for thoſe that are kept for *Seed*, they ſhould be ſuch as are large and ſtrong, and the Bottoms either *blue*, *dark*, or *purple*, and alſo clean three-edg'd ones. Theſe muſt ſtand longer than the reſt, for the Ripening of their *Seeds*; and as for the others, when they drop their Leaves you muſt break off the Pods.

When the Stalks of *Tulips* are become dry and withered, they muſt be taken up every Year; for at that Time the Roots loſe their Fibres; but they ſhould not be taken up when the Sun ſhines too hot, eſpecially thoſe that are valuable.

Every Sort ought to be laid by it ſelf, in Papers written upon, that there may be no Confuſion when they are ſet again. They ſhould be firſt laid in the Sun to dry, and afterwards be put into Boxes, and kept in a dry Room, and ſhould be examin'd once in a Fortnight or three Weeks, to ſee if they do not begin to mould, which they are apt to do, if they are not now and then gently re-air'd in the Sun; and if they do mould, it will ſpoil the Roots.

If you find any of them ſhrivell'd or crumpled, or feel ſoft, it is a Token of their being in a decaying Condition; in Order to prevent which, you may lay them up in *Wool* dipt in *Sallet Oil*, and lay them where the Warmth of the Sun may juſt reach them.

About the End of *Auguſt*, you may put them into the Ground, and place about them fine Mould, mix'd with Wood-Aſhes and Soot. And you ought to cover them with a Pot, to prevent any Wet from ſpoiling them 'till the Fibres are put out, which, if they do at all, they will do by the latter End of *September*; and about that Time the other Roots ſhould be ſet in the ſame Form and Manner; and it will be very well if they may be preſerv'd from too much Moiſture during the *Winter*-Seaſon, becauſe the Sun then is not powerful enough to dry them, and ſo the Froſts may cauſe them to rot and ſpoil.

Tulips are ſubject to the Canker: This may be diſcovered by their Leaves lying down, rolling up and wrinkling. And in Order to prevent the Effects of it from falling into the Root, you may cut them off.

If the Roots be taken up too ſoon, they will grow withered in two or three Days Time, which if you perceive, you had beſt lay them in the Ground, where no Rain can fall upon them for ſeven or eight Days; and when you find they have recovered, being grown cloſe and firm, lay them up, and put ſome dry Earth over them, and they will keep well.

If the Bulbs are taken up in dry Weather, you ſhould put them in Boxes, and cover them with dry Earth, that they may not dry too ſoon, but ſlowly by Degrees: Set the Boxes in a dry Room, and the Earth about them will be dry in three Weeks or a Month; then take it away, leaving the Bulbs, and then they will be in a Condition to be kept 'till it is Time to tranſplant them. If the Earth, into which they are to be tranſplanted, be dung'd at all, he adviſes, to dung it with Neats-Dung that has lain 'till it be rotten.

He recommends two Parts of Neats Dung, two Parts of freſh Earth, and two Parts of Sea-Sand, or, if that be not to be had, Brook-Sand may ſerve as the beſt Compoſition, if the Earth be not naturally light enough for them. Theſe ſhould be all well mix'd together, and turn'd up, before it be laid on the *Tulip* Bed.

In Order to make them hold long in Flower, he adviſes, to ſhelter them from the Sun and Rain; but then you muſt take

Care to uncover them again, when they have ſhed their Flowers, that both Sun and Rain may come at them, becauſe the Roots grow moiſt at that Time, and have Occaſion for the greateſt Refreſhing.

As to Tulip Bulbs.] Monſ. *Liger* ſuppoſing the Parts of a Parterre, or Beds deſign'd for them, to be provided with the compound Earth, as he has directed, and laid in the Form of a Carp's Back, adviſes, to prepare the Ground according as he has directed for *Anemones*, and to plant the Bulbs upon the Corner of each Square, about three Inches deep, providing it well with Earth on all Sides. The Time he recommends, is from the Middle of *October*, to the End of *December*.

As ſoon as the Bulbs are put into the Ground, they ought to be defended from the Froſts, by being cover'd with large Straw, or dry'd Dung; but they muſt be uncover'd again when the Froſt is over.

When the Bulbs are perceiv'd to ſhoot in the Month of *March*, if the Seaſon permits, they ſhould be watered, if it has not rained: They muſt alſo be weeded.

He ſays, Bulbs of *Tulips* are not to remain in the Earth more than one Year, but muſt then be remov'd; taking them up with a diſplanting Grove thruſt into the Ground at a convenient Diſtance from the Bulb, and a little below the Fibres, that it may be done without wounding them; and ſeparate the Earth from them.

Tulips are to be remov'd as ſoon as the Stalks are wither'd; when they are clean'd, lay them in an open Place, but not where the Sun may come at them, for the Roots are ſo tender, that they will be apt to be dry'd too much by the leaſt Heat. And do not lay them one upon another, becauſe the undermoſt will be apt to be heated.

When the Time of Planting comes, you muſt ſeparate the *Suckers*, and plant them according to Direction; and alſo the *Suckers* in the ſame Earth as the Bulb it ſelf.

Of the Suckers of Tulips.] The *Suckers* of *Tulips* are not planted for the Ornament of a Garden, but only for Propagating the Kind: However, you may plant them in Rows at five Inches Diſtance, and two Inches deep; cover them neatly, and order them as the Bulbs.

Some ſay theſe are to ſtand two Years before they are remov'd, and others three Years; becauſe, the firſt Year they only ſprout, the ſecond they multiply, and the third they acquire Diſpoſitions proper to produce Flowers.

To prevent theſe *Suckers* from growing dry, from the Time that they are ſeparated from their Bulbs 'till they are planted, you may lay them in *Moſs* in an open Place, and then they will thrive wonderfully after they are planted.

Tulips in Parterres are mix'd with *Hyacinths* and *Narciſſus's*, eſpecially in a large Garden: Nor is there ſo much Regard had that they be the moſt beautiful Flowers, as to the Variety of their Colours.

Remarks concerning BREEDING-TULIPS.

As to the Breaking, or Striping of Tulips.] Mr. *Bradley* would have theſe Things obſerv'd :

1. That *Tulips* do not preſerve their Roots two Years together ; but that the Root that was taken out of the Ground one Year, is quite loſt the next, in the *Flower*, *Leaves*, *Seed* and *Stem:* And that the Juices, which circulate through theſe Parts, are framing a freſh Root, bordering upon the Place where the firſt was, while theſe Parts are growing, and by that Means diminiſhing the Root they ſpring from : So that by that Time the Plant has performed its *Summer*'s Work, there does not remain any old Root at all ; but the Flower-Stem adheres to the Side of the new made Root. That this Root is new, you may be certain, becauſe the Stalks ſtand on the Outſide of it ; for the Flower-Stalk always comes out from the Middle of the Root that was planted.

While a *Tulip* is under its ſeveral Degrees of Growth, from the very firſt of its putting forth the Leaf, the Root is daily declining, and a new Root is forming it ſelf, and every Day increaſing ; and by that Time the Flower and Seed is fully perfected, the old Root is waſted wholly, and the new one compleated fully.

He adds, that he diſcover'd this, by taking up ſeveral Roots of *Tulips* in different Degrees of Growth ; and obſerv'd, that in Proportion to the Times they ſeverally requir'd to perfect their Seed, as there was leſs or more of the old Root left, the new Roots were greater or ſmaller. Before the Flowers were colour'd, the old Roots were but half decay'd, and the Cloves on the Outſide of thoſe Roots began to dry.

When the Plants were in full Bloom, the Cloves which did yet remain, were all inclining to dry, and there were in the old Root three, and ſometimes but two in Number ; and at that Time the young Roots were very ſtrong.

And that while the *Tulips* were in this State, he took up large, *red*, *Breeding Tulips*, which have *black* Bottoms, and ſplit one of them through the Middle, the better to explain the Matter, a Delineation of which he gives you on a Copper-Plate, with an Explication, in his general Treatiſe for *April* and *May*, printed in the Year 1724.

If you ſplit the Flower-Stem of a *Tulip*, you will find a great Number of Veſſels running thro' the Stem 'till they arrive at the Flower, which then are branch'd into the *Petals*, or *Flower-Leaves*, and do diſtribute the Nouriſhment into the *Stamina*, *Apices* and *Piſtillum* of the Flower ; but where the *Petals* are ſet on, the Stalk becomes larger, and the Subſtance of it is much harder than it is in other Parts.

Again, If you examine a whole *Tulip*-Plant while it is in Flower, firſt cutting the Stalk Horizontally, within an Inch of the Root, you will find that the Sap Veſſels are ſet together much cloſer there than they are towards the Top of the Stem: As theſe Veſſels riſe from the Root, they branch themſelves into the Leaves, which grow upon the ſeveral Parts of the Stalk.

From theſe Obſervations, he draws the following Inferences:

1. That the *Flower-Stem*, the *Leaves*, the *Flower* and the *Seed*, are all perfected from that very Root that is put into the Ground, only as the Soil is more or leſs favourable to the *Tulip*-Plant, thoſe Parts grow more or leſs luxuriant; the *Tulip* receiving its Nouriſhment from the Soil, by taking it in by the Fibres.

2. That it appears plain, that the Sap circulates through the whole, by the Waſting of the old Root, and Growth of the new Root, they both correſponding immediately with the *Flower-Stem*; for the new Root has no Fibres to take in Nouriſhment from the Earth, and ſo to make it grow; and therefore it cannot be nouriſh'd any other Way than from ſome Veſſels in the Stem, by the returning of the Sap, which goes up from the old Root; and as the new Root is conſtantly growing, ſo the Sap muſt be conſtantly returning; for if the new Root were nouriſh'd only at ſet Times, it would in the Intervals loſe what it gain'd at thoſe Times in which it did receive its Nouriſhment; but the contrary of this is found by Experience.

3. This new Root keeps growing 'till the Flower and Seed is come to Perfection, and then the old Root is become quite decay'd; the Flower-Stalk grows dry, and is ſeparated from the new Root without Difficulty, which cannot be done while the Stalk is *green*, and the Juices continue to flow in it.

4. It ought to be obſerv'd, that the Change or Alteration in the Stripes of the Flower, are to be expected from the new Root; and tho' a Root planted in the Ground for Blowing this Year, ſhould produce a *plain* Flower; yet the Parts that are fram'd in the new Root may be ſo modell'd, as the next Year to bring its Flower into Stripes; and this may be effected by the Want of Nouriſhment; as by Planting it in *Brick*, *Lime*, or *Stone-Rubbiſh*.

For this Reaſon, when *plain Tulips* are planted in the *Rubbiſh-Soil*, to cauſe them to break into Colours, you ſhould not expect to ſee any Alteration the firſt Year; becauſe the new Roots which are form'd in the *Rubbiſh-Soil*, are thoſe that muſt blow, to ſhew the Effect of Planting in ſuch a Soil. The Properties of the old Roots were fix'd in them before they were put into the Ground, and ſo could not admit of any Alteration, but of Blowing lower or taller, as they receiv'd leſs or more Nouriſhment from the Soil in which they were planted, in Order to Blowing.

But it may ſo happen, that ſome of the *Tulip*-Roots, that were planted in *September*, may bring *ſtrip'd* Bloſſoms the Year following; but then there is good Reaſon to think, that thoſe Stripes were regulated in the Roots which were made the preceding Year.

It is worth obſerving, That ſome *Tulips* that have been already *broke*, or have come to *ſtripe*, do one Year abound in the *dark* Colours, and come finely mark'd the next Year; as the *Vulcan-Tulip* does. He therefore is of Opinion, that while *Tulips* blow with a very large Share of the *dark* Colours, the new Roots have imbib'd a large Share of thoſe Juices, which will afford the brighter Colours, and ſo on the contrary: For he has obſerv'd in thoſe *Tulips* call'd *Breeders*, that the Maſs of Colours which is in their Flowers before they break, is a Compound of ſeveral Colours, which when they come to break, appear ſimply in their Stripes; and that thoſe *Breeders* cannot break into any *Stripe* of Colour but what is either one or more of thoſe Colours which make up the compound Maſs, in their *plain* Flowers.

In Demonſtration of this, he inſtances, for Example, the *Bagget Primo*, which is eſteem'd as one of the beſt Sorts of *Breeding Tulips*. This produces its *plain* Bloſſoms of a pale *purple* Colour, in which is contain'd a large Share of *white*, a moderate Share of a deep *Lake* Colour, and a ſmall Share of *blue*. Now theſe three Colours being rightly blended together will exactly make the Colour of the *Bagget Primo*. And when this Flower comes to break and ſtripe, which proceeds from theſe Colours being ſeparated, the Stripes are always of thoſe Colours which made up the compound Colour, in the *plain* Flower of that Sort.

When the *Lake* is quite alone, it ſhews its Gaiety, when it is mix'd with a large Share of *white*, it makes a *Fleſh* Colour; when mix'd with a large Share of *blue*, it is much darker than when the *Lake* is quite alone; the *blue* and *white* produces a *Sky*-Colour; and ſo the Stripes will produce as much Variety as can be made by mixing theſe Colours one with another, in different Proportions.

The Reaſon theſe Colours do thus ſeparate one from another, ſeems to be from the Structure of the Veſſels that are form'd in the new Root; ſome being form'd in ſuch a Manner as to receive only ſuch Juices as will yield one Colour, and others ſuch as will produce another Colour; after the Manner of the Veſſels in Animal Bodies; ſome a *white* Liquor, as *Milk* in the Breaſts; ſome *red*, as *Blood* in the Veins; and ſome ſuch as is of the Colour of *Urine*.

From whence it appears as plainly, that there are Veſſels in Plants for the circulating and ſecreting of Juices, as that there are Veſſels in Animals which diſtribute and ſeparate the Juices in every Part of their Bodies.

It likewiſe ſeems neceſſary, that this Circulation of Juices ſhould be continued in *Tulips*, 'till it has perform'd all its Offices, *viz*. Perfecting the Flower-Stalk, the Leaves, and Flower, *&c*. for the better adapting the new forming Root to the ſame Mode of Growth, and imprinting in it every natural Perfection of the Original it took its Riſe from: Therefore, he ſuppoſes, it is, that the new Root continues growing all the while the old one is performing its Offices, that the Principles of every Part may circulate through it.

Again, the *Beau Regard*, is a *Tulip*, whoſe *purple* Colour is much paler than the *Bagget Primo*, the Maſs of its Colour being compos'd of a very little Share of *blue*, but a great Share of *white*, and about the ſame Quantity of the deep *Lake* Colour as of the *blue*. When this Flower comes to ſtripe, it ſhews the Colours ſeparately, which the *plain* Flowers are compoſed of, as the *Bagget Primo* did thoſe of which it was compoſed.

Alſo that *Breeding Tulip* call'd *Van Porter*, whoſe *plain* Flowers are of a *reddiſh purple* Colour, the *Lake* prevailing more than the *blue*, and where the *white* is leſs than the *blue*; in this Sort alſo you may expect the various Colours which may be produc'd from theſe three Colours, in thoſe that become ſtrip'd.

As to the *Tulip* call'd the *great Dutch Breeder*, with the *black* at the Bottom, the *plain* Flowers of it are of a dirty *red* Colour, altho' it is compos'd of two Colours, which when ſeparate are as beautiful as can be imagin'd, the *red* being of a *carmine* Colour, and the *yellow* fine, like that of *Gamboge*; altho' together they make this unpleaſant Maſs of Colour; but when theſe Sort of Flowers ſtripe, and are ſomewhat ſeparated, the Variegations are extremely fine.

Again, as to the *Tulip* call'd the *Dutch red Breeder*, with a *yellow* Bottom, the Colour of it is darker than that laſt mention'd; the Colours which compoſe the Maſs are ſuch as make the former, but there is a little *black* intermix'd with the Colours of the latter; and when it breaks, the Stripes of it partake only of the Colours which are in the Maſs, either ſimple or compounded, as the others do, which have been mention'd before.

It has been alſo ſometimes obſerv'd, that when a Flower breaks, the *white* is very prevailing, being only ſpotted here and there with thoſe other Colours, which were blended together in the Maſs of the common *Breeder*; from whence it is reaſonable to ſuppoſe, that the new forming Root poſſeſſes thoſe Juices which make the darker Colours, and will the next Year ſhew them in its Flower.

The Author aforeſaid recommends the following Methods, to cauſe the Colours to ſeparate in *plain Tulips*, and produce thoſe *Stripes* which are ſo much eſteem'd.

He ſays, That it ſeems certain to him, that the Colours of Flowers circulate with their Juices all over the Plants; this he collects from the *green* Leaves which, upon certain Occaſions, are now and then ting'd with *yellow*, *ſcarlet*, and other Colours, which are only common to the Stalks on which they are found. And that it is alſo evident, theſe Colours, or their Rudiments, do likewiſe circulate thro' the new Root in ſome Proportion; becauſe that Root does produce Flowers which partake of the ſame Colours that the Flower produc'd by the old Root does.

And he is of Opinion, that as the Veſſels that correſpond between the old Root and the Flower, and from the Flower to the new Root are all of them in the Stem of the Flower; ſo if ſome of them could be pinch'd without wounding them all, or the Sap could be ſo arreſted, as that it could not circulate with its wonted Freedom; then by ſuch Checks the new forming Root would be brought to ſeparate its Colours in ſuch Manner as to produce Stripes of thoſe ſimple Colours, that did compoſe the compound Colour in the Maſs.

He propoſes one Way to do this, which is by binding the Flower-Stem pretty hard with Packthread, a little before the Flower opens, and thinks that this Binding will either preſs or wound the Sap-Veſſels ſo much, that it will prevent the Courſe of the Sap, and ſo by that Want the new forming Root will be varied from the old Root.

Or if a few of them were cut by a fine Lancet, that probably might have a good Effect; but he doubts whether they would cloſe or heal again. As for thoſe Veſſels he would have cut, they lie juſt within the thin Skin of the Flower - Stem; but his Thoughts are, that the moſt ſure Way is to pinch them with Packthread.

He adds, That whereas there have been many Tryals made, to alter the Colours and Properties of *Tulips*, they have all been ineffectual; as the Steeping the Roots in Liquors of ſeveral Colours; and putting Powders of ſeveral Colours into the Cloves of the Roots; the Planting in coloured Earth; and alſo the drawing coloured Silks of ſeveral Sorts through the Roots, to ſtripe their Flowers. But as to the Experiment he propoſes, that cannot hurt the Roots.

It is alſo obſervable, that now and then a Root is found form'd upon the Flower-Stem an Inch or two above the Ground, which ſeems to indicate that the Principles of all the Parts which belong to a *Tulip*-Plant, are in that Flower-Stem; and if the Sap did not circulate throughout the whole Plant, theſe could not be all in that Part.

33. TULIP-TREE.

THE *Tulip-Tree* is a Native of *America*, and grows in *Virginia* and *Carolina*; which

Mr. *Bradley* thus deſcribes: The *Tulip*-Tree will riſe to as great a Height as any of our Timber-Trees; its Leaves are ſomewhat like thoſe of the *Maple*; and its Flowers grow at the Extremities of the Branches: They do ſome ſmall Matter reſemble a *Tulip*; but, he thinks, not enough to give Name to the Tree. The Petals or Flower-Leaves are of a *yellow* Colour, ſomewhat variegated with *Vermilion:* They begin to open about *July*. The Fruit is like the Cones of the *Fir*-Tree, and ſucceeds the Flowers; but does not come to Perfection in *England*.

It being difficult to propagate this Tree here by *Layers*; and we having good Seeds of it from *Virginia* and *Carolina*, he gives us an Account of the Method of Raiſing it from them.

He tells us, That the ingenious Mr. *Adam Holt*, having gotten ſome of the Cones of the *Tulip*-Tree, from *Virginia*, ſow'd ſome of the *Seeds* in *Auguſt*, in Pots, and ſet them under Shelter all the *Winter*; and they came up the next *Spring* without the Help of a *Hot-Bed*.

He adds, That he had often try'd to raiſe them, by ſowing them in the *Spring*, but could not do it.

At two Years Growth, he ſays, the young Plants may be tranſplanted into ſingle Pots; but muſt be ſhelter'd in the *Winter*-Time for the firſt nine Years; that they have obtain'd Strength enough to reſiſt the Severity of our Froſts; and then they may be planted out into the natural Ground. And he rather recommends a *ſandy* Soil, than any other.

That it is a Plant of the Wood, and therefore will not proſper abroad in a more open Expoſure; and ſhould be ſet among ſuch Trees as are deſign'd for Groves.

He ſays, That he has known that when it has been planted in a more warm and open Expoſure, it has periſhed; whereas, being in its native Country *(Virginia)* an Inhabitant of the Woods, and in the Lord *Peterborough*'s Gardens, at *Parſons-Green*, planted in a Wilderneſs, it flouriſhes ſo well, that it ſeems to know no Difference between the Latitude of 52, and 38: Therefore it is his Opinion, That every Tree which is a Native of a *Plain*, ſhould be planted in a *Plain*; and every Tree that is a Native of a *Wood*, in a *Wood*.

He having ſpoken of *Root-Grafting*, ſays, That he doubts not but we have, by that Means, an Opportunity of Propagating many Sorts of Plants, which, 'till of late, Means have been wanting to perform; and he does not queſtion but the *Tulip*-Tree might be encreaſed by it.

The firſt Tree of this Kind was brought from *America* into *England*, and bloſſomed here, is now growing in the Gardens of the Lord *Peterborough*, near *Fulham*, at *Parſon's-Green:* But there is now another of them in the Gardens of the Lord *Pembroke*, at *Wilton*, in *Wiltſhire:* And it is ſaid, that there is another, which bears Flowers, in the Garden of Eſq; *Jones*, at *Waltham-Abbey*. Mr. *Darby*, at *Hoxton*, and Mr. *Fairchild*, are ſaid to have rais'd ſome Hundreds of them from *Seeds*; from whence the chief Gardens abroad have been ſupply'd.

Mr. *Bradley* ſays, he has ſeen *Tulip*-Trees rais'd, by laying the young Branches in the Earth.

34. TUNICLE.

TUNICLE, a little Membrane, or membranous Coat, covering any thing.

35. TURF.

MR. *Switzer* ſays, That whereas moſt Gardeners do prefer the finer *Sheep-Walk Turf*, yet he rather recommends the *Turf* of *Paſtures*; for that the *Sheep-Walk Turf* very often turns *moſſy*, and ſo is good for nothing; but the luxurious *Turf* of *Paſtures* grows ſtrong, and maintains an excellent *Verdure* and *Carpet*; and if a little more Care than ordinary be taken in mowing and rolling it, it is much beyond the fineſt *Sheep-Walk Turf* that can be found.

Turf ſhould be cut about two Inches thick, and eſpecially if it be cut either early in *Autumn*, or late in the *Spring*: And great Care ſhould be taken to cut it of an equal Thickneſs.

In laying *Turf*, Care ſhould be taken that it be well joyned, that it be laid upon a middling Mould, at leaſt four Inches *thick*; and if it be furring *Gravel* or *Sand*, the Earth ought to be ſix, eight or ten Inches thick; and if Part of it be a *ſtrong*, *loamy Clay*, it will be the better, and maintain its fine and natural *Verdure*.

Mr. *Laurence* recommends the *Parings* of *Turf* taken off the untry'd Earth, he ſpeaks of, as an incomparable Soil for Amendments, after it has been laid on Heaps to rot for two or three Years, and been often ſtirred.

36. TURGESCENCE.

TURGESCENCE, a Swelling up, or growing big.

37. TURGID.

TURGID ſignifies ſwelling, or growing big.

38. TURNEPS.

OF this Root, Mr. *Mortimer* reckons three Sorts: The *round*, which is the moſt common; the *long*, otherwiſe call'd the *narrow*; and the *yellow*: They delight in a warm, light, mellow Ground, rather *ſandy* than otherwiſe, not requiring a rich Mould.

Mr. *Bradley* ſays, this Root is always ſweeter in a *ſandy Soil*, than any other Ground; and will have larger Roots, if the Land be ſomething inclinable to *Loam*.

Mr. *Mortimer* ſays, they are ſown at two Seaſons of the Year; in the *Spring*, and about

Midſummer and after; in *April*, to have *Turneps* in *Summer*; and about *Midſummer*, that they may be ready to improve by the Rains in *Autumn*, which, he ſays, makes them much ſweeter than thoſe that are ſown in the *Spring*.

Mr. *Bradley* ſays, you may ſow *Turneps*, from the Middle of *July* to the tenth of *Auguſt*, and not later, that the Roots may have Time to apple before *Winter*.

He adds, That indeed it is ſeldom practis'd, to provide *Turneps* for the *Summer*; but he ſees no Reaſon, being an excellent Root, why we ſhould not have them all the Year. That they may be ſown in *Spring* as well as *Autumn*; but that the Planting them out from *Seedling* Plants in the *Spring* and *Summer* Months will do much better, as he has found by his own Experience.

Mr. *Mortimer* ſays, they muſt be ſown as ſhallow as you can; for that thoſe Roots that go but a little Way into the Ground will be the larger.

They muſt alſo be ſown thin; for if they are ſown too thick, it will hinder their Growth: When the Plants have two or three Leaves a-piece, they ſhould be hough'd, leaving the Space of about five or ſix Inches between the Plants. And if the over-Fatneſs of the Ground, which is a very great Injury to *Turneps*, or too much Wet ſhould cauſe them to run out into Leaf more than into Root, you ſhould tread down the Leaves, and that will make them root the better.

In *Winter*-Time, *Turneps* being taken up before the great Froſts hinder it, and having their *green* Tops cut off, and being laid in a Heap, will keep a great while; but it is the beſt Way to cover them with *Sand*.

V A

1. VALERIAN.

Deſcription.] THIS Plant is deſcrib'd by Monſ. *Liger*, after this Manner: It ſhoots forth ſlender Branches, about three Foot high, which are divided into ſeveral Boughs, adorn'd with Leaves at equal Diſtances, of which ſome are indented very deep, and others are intire. At the Top of theſe Boughs grow ſingle-leav'd Flowers, of a light *purple* Colour, in the Shape of a Pipe, and odoriferous, which reſt upon a Cup, which in Time become an oblong Seed, almoſt folded and tufted.

Various Kinds.] Mr. *Bradley* ſays, there are three Sorts of *Valerians*, which they diſtinguiſh by the following Names, *viz.* the *Dodonæus*, or *red Valerian*; this Plant is not of ſo long Duration as the other two; bloſſoms about two Foot high, and bears a great Number of ſmall *red* Flowers; and when the Root is broken, yields an agreeable Scent. The *Garden* or *white Valerian*, which bloſſoms about the ſame Height with the former, and bears Tufts of *white* Flowers; and its Root being broken, is odoriferous, like the firſt. The *Greek Valerian*, which bloſſoms about a Foot high, and bears Flowers of a *pale blue* Colour, in Bunches upon the Top of its Flower-Stalk: This Sort hath, ſome of it, variegated Leaves.

Way of Propagation.] Theſe all may be rais'd of *Seeds*, ſown in *March*; which Mr. *Mortimer* ſays, ſhould be kept moiſt: And bloſſom much about the ſame Time of the Year; in *May* and *June*, Mr. *Bradley* ſays; *March* and *April*, and moſt of the *Summer* Months, ſays Mr. *Mortimer*.

The *Greek Valerian* is a fibrous rooted Plant, and may be very eaſily encreas'd by *Slips*.

Monſ. *Liger* ſays, it is rais'd in the ſame Manner as he directs for the *Oxe-Eye*, or *Bupthalmos*; which ſee.

2. VAPORIFEROUS.

VAPORIFEROUS ſignifies cauſing or producing Vapours.

3. VAPOURS.

VAPOURS are defin'd by Naturaliſts to be thoſe watery Particles which are ſevered from others by the Motion of the Air, and are carried about in it ſeveral Ways; according as the Wind, or Warmneſs of the *Air ſerves*, they riſe out of the Sea, Rivers, Lakes, and other Waters.

As to their hanging in the Air, we may obſerve, in a hot Day, when there is no Wind ſtirring, ſuch a Company of Vapours to riſe out of moiſt Ground, as make thick Fogs, which are ſometimes higher, and ſometimes lower, as the Multitude and Motion of the Vapours happens to be. They are to be ſeen as well upon high Grounds as low.

They are eaſily diſſipated by the Wind, and particularly if it be a drying Wind.

The Sun has the ſame Effect upon them; and we commonly ſee, when there are thick Fogs about Sun-riſing, they diſappear a little after it is up.

It is evident, That Fogs do conſiſt of Aqueous Particles, rarefied, becauſe they mightily bedew every thing that lies open to them. Theſe Particles, being ſoundly moved, muſt needs fly aloft into the Air; but if their Motion be ſomething faint, they play about the Surface of the Earth. For this is agreeable to the Laws of Motion, that ſuch Things as are about the Globe of the Earth, the more they are mov'd, the more they recede from the Center of the Earth.

Again, theſe Fogs ariſe out of all Places mountainous or champain, and continue 'till they are diſpell'd by Wind or Heat; but they continue longeſt in the lower Grounds, becauſe thoſe Places are fulleſt of Moiſture, and are not ſo much expos'd to the Winds: But wherever they be, when the Wind riſes upon them, they are diſſipated and driven about, 'till we ſee no more of them.

So, in like Manner, the Heat of the Sun, by putting them into a brisker Motion, either diſſipates them by Rarefaction, or raiſes them higher, and forms them into Clouds.

And whereas ſometimes the Fogs ſtink, it is not becauſe they come from ſtinking Water; but becauſe the Vapours are mix'd with ſulphureous Exhalations, which ſmell ſo. Perhaps theſe Exhalations would fly up directly to the Clouds, if there were no Fogs to hold them, and ſo would not affect the Senſe of Smelling; but when they are once entangled and blended with the Fog, they laſt as long as that does.

The Clouds are higher than the Fogs; they hang in the Air, and are carried about in it by the Winds. The Clouds are of various Figures, and ſometimes ſo thin, that the Rays of the Sun paſs thro' them; but at other Times they are thick enough to intercept and obſtruct them: They alſo appear of ſeveral Colours, as, *white*, *red*, and ſometimes very *dark*.

The Thickneſs of the Clouds proceeds from the Cloſeneſs of the vaporous Particles one to another; and their Thinneſs from the Diſtance of thoſe Particles one from another, of which there are ſeveral Cauſes. When they are very thin, they leave ſo many Interſtices, that the Rays of the Sun dart thro' them in many Places, but are intercepted in others.

As to the Varieties of the Figures of the Clouds, they ariſe from their Plenty of Vapours, and the Influence of the Sun and Wind: For they cannot be variouſly condens'd, rarefied and carried about in the Air, but their Figure muſt needs be changed.

To account for the Clouds hanging in the Air, is a Matter of ſome Difficulty.

All the watery Particles, of which they conſiſt, are heavier than Air; and ſo, if there were nothing to hinder them, they would fall to the Earth. But there are two Things that ſeem to keep them up.

1. The Winds which blow from all Parts, under the Region of the Clouds, and bear about with them many lighter Sorts of Bodies; eſpecially if thoſe Bodies contain but a ſmall Quantity of ſolid Matter under a broad Superficies. And thus it is viſible, how eaſy *Paper-Kites* are kept up by the Wind, when they are mounted pretty high; and ſo the Particles of Water, pretty much rarefied, may eaſily be ſuſpended at that Height.

2. New Exhalations and Vapours are perpetually fuming out of the Earth, and by their moving upwards, prevent the Clouds from deſcending, unleſs the Denſity of the Clouds overweigh them. Thus we ſee the Vapour of Fire carries lighter Bodies up the Chimney: And Smoke can turn a thin Plate of Iron, artfully placed in it,

ſo ſtrongly, as to turn about a Spit and roaſt Meat.

It is a Queſtion among Naturaliſts, Whether Clouds and thicker Fogs are compos'd alike? Or whether there be ſomething more in the Clouds?

Some think that Clouds are groſſer than all Fogs; and that they are compos'd of Flakes of Snow, rather than Particles of Water, ſuch as make Fogs.

Others ſay, it is enough to conſider Clouds as a cloſer Sort of Fogs. And indeed the Fogs that hang upon the Tops of very high Hills, appear to People in the Plains to be all one with Clouds; tho' thoſe that are at them, perceive nothing but a thick Fog.

There being always many Vapours in the Air, tho' not always viſible, it comes to paſs, that great Dews fall, even in clear Weather, and eſpecially in thoſe Countries where it ſeldom rains. For when it happens, that the ſcattered Vapours are collected and condenſed together, and forced downwards, they muſt needs fall, and bedew Plants and Graſs.

The Time for the falling of the Dew is either before the Riſing of the Sun, or after the Setting of it. But in Order to its falling regularly, at thoſe Times it is neceſſary that the Air be calm; for windy or ſtormy Weather hinders it. But when the Weather is calm, and gentle Breezes are felt from the *Weſt* about the Time that the *Sun* ſets; and from the *Eaſt* *out the* Riſing of it, it is probable they collect the *Vapours*; and precipitate them, by moderately cooling the Air. And becauſe the Morning Breezes are more general than the Evening ones, therefore the Evening Dews fall only here and there; but the Morning ones ſeldom fail to be univerſal.

It is likewiſe found by Experience, That the Dews are more copious in hotter Countries than in cold; the Reaſon of which ſeems to be this: That the Heat of the Sun does, in the Day-time, raiſe abundance of Vapours out of the Water, which Vapours are ſo extremely rarefied by the ſame Heat, that they are diſpers'd far and wide; but the Cool of the Night brings them together again, and condenſes them to that Degree, that they fall to the Ground, but not in ſuch large Drops as Rain does.

But in colder Countries, where there are frequent Rains, and the Vapours are leſs rarefied, moſt of them come down in Rain, and but a ſmall Part turns to Dew.

A certain Author ſays, That in ſome of the hotter Climates, the Earth is without Rain for ſix or ſeven Months together, and is every *Summer*-Seaſon ſo much parch'd and dry'd, that there is hardly any Moiſture to be found in it for three or four Foot deep, and during that Time, the Heats are ſo exceſſive, that without the refreſhing Dews of the Nights (which are there very conſiderable) the Plants muſt inevitably periſh; for there is no Moiſture they can have, but from the Dews: And yet that Moiſture ſupports the Trees and Plants in a flouriſhing State. Towards the End of the Day, the Leaves contract themſelves, by Reaſon of the exceſſive Heat of the Sun; but by the falling of the Dews at Night, they expand and open themſelves; ſo that in the Morning and Forepart of the Day they have a moſt agreeable *Verdure*. And alſo this Moiſture of the Dews affords ſufficient Nouriſhment to the Plants to bring the Fruits to Perfection.

This, Mr. *Bradley* ſays, helps very much to explain the Motion or Circulation of the *Sap*.

4. VARIEGATED.

VARIEGATED ſignifies ſtreaked or diverſified with ſeveral Colours.

5. VARIEGATION *of* PLANTS.

THE *variegated* common *Jeſſamine*, or ſtrip'd Sort being inarch'd or inoculated either into the *plain* common Sort, or the *Spaniſh Jeſſamine*, or the *Indian* or *Brazil* Kinds; the Malignity which cauſes the *Whiteneſs* in the Leaves of the firſt, mixes itſelf in ſuch a Manner with the Juices of the Plants it is ingrafted with, that their Leaves become infected, and ting'd in ſome Places with the *white* Colour.

Or if a Bud of the *variegated* Sort be put into a *plain Jeſſamine*, ten or twelve Foot above the Ground, the Poiſon will reach the Branches next the Root, as well as thoſe that are above it, at a greater Diſtance; and alſo it has the ſame Effect upon the *Ever-green* Sorts. Theſe Things ſeem to Mr. *Bradley* to be a plain Demonſtration of the *Circulation* of the *Sap*.

There are three Sorts of *Variegations* or *Stripes* in Plants: That which ſhews it ſelf in *yellow* Spots here and there in the Leaves of Plants, ſeems to have the leaſt Share of Diſtemper in it; but *white* is a ſure Sign of Weakneſs and Diſtemper; ſo that two Leaves are never mark'd exactly in the ſame Manner: This is call'd, by Gardeners, the *yellow* Bloach, or Blotch.

The ſecond is the *white* Bloach; this commonly marks the Leaves of Plants with a great Number of Spots or Stripes; and thoſe are the *whiteſt* that lie next to the Surface of the Leaves, and are moſt commonly accompanied with other Marks of a *greeniſh white*, which lie deeper in the Body of the Leaves, even in the Ramifications of the *Sap*-Veſſels; but then the woody Part of the Plant is not *variegated* in either of theſe Caſes.

It has been an Obſervation, made by Mr. *Fairchild*, that where the Leaves of Plants are *ſtrip'd* after this Manner, and ſhew three or four Degrees of Colour, there is ſome Hopes of its becoming an *Edge*, (as the Gardeners call it) *i. e.* That it will have its Leaves edg'd with *white*, which is eſteem'd the moſt beautiful Degree of Striping: And it has this in it that certain, that it will never again, by any Means whatſoever, be brought to produce *plain green* Leaves.

In this Caſe, the Bark, Fruit and Wood are always *variegated*, as well as the Leaves: So that when once the Leaves of the Tree are edg'd with *white*, the Diſtemper has ſo powerfully eſtabliſh'd it ſelf, that the moſt noble Parts of it are all ting'd with the morbid Matter, without any Poſſibility of removing it: Nay even the very Fruit, its generative Parts are infected; and the Seed of it will produce Plants which do partake more or leſs of the Diſtemper of the Mother-Tree.

If Trees are bloach'd or ſpotted only with *yellow*, or *white*, it may be poſſible to recover thoſe Plants to their genuine *Verdure*, by inarching them into an healthful Stock of the ſame Species, letting the Stocks ſtand for a Year or two joined with them; and ſo the Juices of the ſtrong Stocks will overpower the Diſtemper, and throw out the vitiated Juices through the Pores of the Leaves, which is a Sort of Tranſpiration. Tho' however the ſtrong Stocks may ſhew ſome Marks of the Diſtemper, by partaking of the uncorrected Juices of the *variegated* Plant; but this is not always ſo: For ſometimes the natural Vigour of the Stock is ſo powerful, that you cannot preſently diſcover the Venom that it has received from the Plant that is joined with it.

He, by the way, makes mention, that he has brought old, decaying Trees to recover their firſt Vigour, by joining them with healthful, vigorous Stocks.

Therefore, if you would communicate the infected Juices in any great abundance to any Plants, in Order to make them become *ſtrip'd*; the Method now in Uſe is to bud or inarch them upon ſuch Stocks as have their Leaves *edg'd*. A ſingle *Bud* or *Eye*, being plac'd in the Eſcutcheon of a Tree that is diſtempered, where it can only receive its Nouriſhment from the vitiated Juices, will become *variegated* proportionably to that Nouriſhment it draws, and will partake more of the *white* or *yellow* Juice than if a Branch ſhould be inarch'd; becauſe the Bud has nothing to nouriſh it, but the Juices of the Plant it is inoculated upon. But if it be inarch'd, the Cyon is fed both by the *ſtrip'd* Plant, and a vigorous Plant, which cauſes leſs *ſtriping*.

Mr. *Fairchild* has one Sort of *Vine*, which has its Leaves finely *edg'd* with *white*: And Mr. *Bradley* does not doubt, but we might *variegate Vines* as we pleaſe, by inoculating that into ſome other Sorts. Mr. *Greenhil*, of *Putney*, has a *Fig-Tree*, whoſe Leaves are *edg'd*; and he thinks might be made to *variegate* others, by the ſame Means.

He adds, the Method of inoculating of Plants is like the Manner of inoculating the *Small-Pox* in human Bodies. The Bark of the Plant to be inoculated,

lated, is opened, 'till the flowing Juices, from thoſe Veſſels that act as Veins, are diſcovered : And then the Bud with Part of the Bark that joins to the Place that has been opened, is apply'd : But this muſt be obſerv'd, that the Bark which joins to the Bud, has thoſe Parts with it, that (according to the Rules of Nature) ought to be placed to what he calls the Veins of a Tree : And then it is bound on, and left remaining 'till it begins to grow.

If the Directions before be obſerv'd, it will be found that the Plants or Cyons will partake of the *ſtrip'd* Colours or *Variegations.* And from theſe Obſervations it appears, that the *Sap* circulates in Plants, as the *Blood* circulates in Animal Bodies. See the Articles *Sap*, *Tulips*, *Paſſion-Tree*, *&c.*

Plants are differently affected with Diſtempers, which flow in their Juices.

1. There are ſome Plants that appear bloach'd in their Leaves only in the Seaſons of *Spring* and *Autumn* ; but thoſe Marks diſappear, when they gain Strength in the *Summer*-Seaſon : Of this Sort oftentimes, are the *Pot-Marjoram*, *Rue*, *Stone-Crop* and *Thyme.*

There are ſome Plants which are continually blotch'd with *yellow* in the ſpongy Part of their Leaves, while in the mean Time the *Sap*-Veſſels are of a pleaſant, healthful *green :* Of this Sort is the *blotch'd Alaternus*, the *Orange-Mint*, *&c.* If theſe have Strength given them by rich Manure, or are inarch'd into healthful Plants, the Diſtemper will be overcome, and the *yellow* will change into a healthful *green.*

3. There are other Plants, the Juices of which are ſo inveterately poiſoned, that the Diſtemper is continued from Generation to Generation : Some have their Leaves *ſpotted*, others *blotch'd*, others *edg'd*, others *ſtrip'd* ; ſuch as the *Archangel*, *Water-Betony*, *Bank-creſs*, *Borage*, *Self-heal*, *ſtrip'd Salary*, and *Sycamore*, all which, from Seed, produce *ſtrip'd* Plants.

Having thus far treated, concerning the *variegating*, mixing, or altering the Colours of Plants, I judge it will not be foreign to the Matter to ſay ſomething concerning Colours.

Colour is a *Phænomenon* in Nature, that has long perplex'd Philoſophers to account for. The Diſcoveries relating thereto, that have been made by Sir *Iſaac Newton*, are to the Effect following :

1. That Light conſiſts of an infinite Number of Rays, right lin'd and parallel, but of different Degrees of Refrangibility, when meeting with a different Medium.

2. Each Ray, according to its Degree of Refrangibility, when ſo refracted, appears to the Eye, of a different Colour.

3. The leaſt refrangible Rays appear of a *deep ſcarlet* ; the moſt refrangible appear of a *violet blue* ; the intermediate proceeding from *ſcarlet* to *yellowiſh*, then to *light green*, and ſo to *blue.*

4. The *Colours* ariſing from the different Refrangibility of

Light, are not only the more noted Colours of *red*, *yellow*, *green*, *blue*, but alſo of all the intermediate of *red* to *yellow*, of *yellow* to *green*, *&c.*

5. *Whiteneſs* (ſuch as the Sun's Light appears) containing all thoſe Degrees of Refrangibility, is conſequently made up of all the above-mention'd Colours.

6. *Simple*, or *homogeneal* Colours, are ſuch as are produc'd by *homogeneal* Lights or Rays, that have the ſame Degree of Refrangibility; and mixt Colours are ſuch as are produc'd by Rays of different Refrangibility.

7. Rays of the ſame Refrangibility produce the ſame Colour, which Colour is not alterable by repeated Refractions, only made more ſtrong or faint, as the Rays are united or ſcattered.

8. All Bodies appear of this or that Colour, according as their Surfaces are adapted to reflect, only the Rays of ſuch a Colour or (at leaſt) in more Plenty than the reſt.

Mr. *Bradley* ſays, tho' he has not yet found any Reaſon given by the Learned for the Diverſity of *Colour* in the Leaves and Flowers, *&c.* of Plants; nor will he preſume to reſolve that great Queſtion: Yet he will give ſome Hints, that (he preſumes) may be ſerviceable towards the forwarding the great Diſcovery.

And Firſt, touching *Colour* in general. This we know, that it appears in all Sorts of Bodies; as, in Flowers, Fruits, Minerals, Clouds, in the Rainbow, in the Plumes of Birds, Hair of Beaſts, and in every Thing elſe.

And it has been uſual to give the firſt Place to *white*, above all the reſt; and the laſt Place to *black*, accounting them to be the two Extremities of *Colour*.

Ariſtotle ſays, That *Light* is the Origin of *Colours*; and that they have no Ways any Relation to the Temperature of Bodies: As, for Example, *White* is ſeen as well in *cold* as *hot* Subjects; for *Snow* is *cold*, and *Lime* is *hot* and *dry*; *Flower* and *Meal* is *dry*, and *Milk* is *liquid*: So that, in the Opinion of this Author, *Colour* does not depend upon the firſt Qualities; but ſimply in the Figure and Order of the Parts: From whence, if their Corpuſcles be *ſphærical*, they produce *white*; and if they be *triangular*, they produce *black*.

It is very obſervable, That *white* is much brighter, as it is produced by a greater Quantity of Rays; and the leſs Rays *black* has, by ſo much the obſcurer it is.

Red is the Medium Colour between theſe two Extremes, becauſe it contains as much Force of the one as the other: But *Yellow* contains more of the *white*; and *Blue* more of the *black*.

Green is a Compound of *yellow* and *blue*; for if a Piece of *blue* Glaſs be laid upon a Piece of *yellow* Glaſs, and ſo plac'd between the Eye and the Object, whatſoever it is that is ſeen thro' them, will appear *green*.

But other Colours are not ſo inclinable to unite, as *blue* and *yellow*; and for this a good Reaſon may be given, becauſe in all other ſuch-like Mixtures, the Parts are different in Proportion; and as long as there is any one Colour predominant, there can be no Union.

Father *Niceron* ſays, That *red* is produc'd by an equal Interruption and Continuation of Rays; as if we did ſuppoſe three continued Rays, and three Points of the Object which were dark. And this Suppoſition might give us to believe, That all *Colours* were compos'd of *white* and *black*; that is to ſay, of certain Proportions of *Light* and *Darkneſs*. And nothing that is *yellow*, is equally diſtant from *white* and *red*, as *blue* is from *red* and *black*. But the following Table may better explain the Difference of theſe.

White has 100 Rays of *Light*.

Red is compos'd of equal Parts of *White* and *Black*; or of 50 Rays and 50 Points.

Black 100 Angles or Points of Darkneſs.

Yellow has 75 Rays, and 25 Points.

Blue has 75 Points, and 25 Rays.

Green the Medium of *Blue* and *Yellow*.

Sanctorius will have all *Colours* to proceed from *Shade* and *Temperancy*; and produces an Experiment to prove that *white* and *black* are each of them compos'd of Tranſparent Globes; and that thoſe which give us the *white*, are void and empty; and thoſe which produce the *black*, he thinks, are fill'd with Matter. The *white* containing only Air, gives no Shade; but the *black* gives Shade: For Air, and ſuch-like ſubtle Bodies, make no Refraction.

Now if we ſuppoſe all bright *Colours* to be compos'd of *Spherical* Particles, then we may reaſonably imagine, that the brighteſt Sorts of them do conſiſt of ſmaller Globes than thoſe do that are more faint; becauſe, as *Sanctorius* ſays, we know that in all tranſparent Bodies in this Form, every ſingle Globe will at leaſt ſend one ſingle Ray to the Eye;

and by ſo many the more there are of theſe Rays, by ſo much the more ſuch *Colours* come nearer to *Light* it ſelf; which, as theſe Parts are more ſubtile and refin'd, is the more dazling. And in like Manner, the *darker* Colours; by how much the more they are compos'd either of more triangular Parts; or as the Parts that compoſe them tend more towards the laſt conceivable Point of Magnitude, by ſo much they become the more ſenſibly *obſcure*.

It may be obſerv'd, ſays Mr. *Bradley*, that *Colours* are chang'd by *Filtration*; for every *Filter* gives its own Form to the Parts of that Body whatſoever that paſſes through it: So that, if we allow *Colour* to be material, every *Colour* is altered by Changing the Figure of thoſe Parts which compoſed it.

White Wine becomes *red* in the Veins; and *Blood* becomes *white*, paſſing through the Minute Veſſels in the Breaſts. Again, *red Wine* becomes *white*, by being diſtill'd.

From whence he concludes, that the Difference of *Colour*, in the ſeveral Parts of Plants, is (in part, if not wholly) produc'd by the Alteration of the Parts of the vegetable Juices, by being *filtred* through Veſſels or Tubes of different Frames and Magnitudes.

It may be obſerv'd further, That *Heat* and *Cold* do neceſſarily reſult from *Light* and *Darkneſs*, the more moderate Points of which, are *yellow* and *blue*; which together produce *green*; and that ſeems to be the moſt prevailing *Colour* of the Earth.

It is alſo remarkable, That in the Growing of Plants, the ſame Plants do from Time to Time alter and change their *Colours*, as the Veſſels which are in thoſe Shoots grow larger: The Leaves are of a faint *yellow*, when they are in their ſmaller State; but they become of a bright *green* or ſometimes *red*, when they are in their middle State; but when their Veſſels are enlarged to their full Point of Growth, they become of a dark *green*; and then change to a *feuille mort* Colour towards *Autumn*, from the Ripening of their Juices; from thence to Putrefaction, which reſolves it again into Earth, its firſt Principle.

6. VASCULIFEROUS.

VASCULIFEROUS *Plants* are, beſides ſuch as have the common *Calix*, a peculiar Veſſel to contain the *Seed*; ſometimes divided into Cells: And theſe have always a *monopetalous* Flower, either uniform or difform.

7. VASES.

A *Vaſe* is a Sort of Flower-pot to ſet in a Garden.

8. VEGETABLES.

VEGETABLES are natural Bodies, having Parts organically formed; but without Senſation.

9. VEGETATION.

VEGETATION is deriv'd from the *Latin*, *vegeto* to quicken, to refreſh, to make lively and ſtrong; and ſignifies the Way of Growth, or Increaſe of Bulk, Parts and Dimenſions proper to all Trees, Shrubs, Plants, Herbs, Minerals, *&c.*

To underſtand the Proceſs of Nature in the Buſineſs of *Vegetation*, it is to be conſidered, That there is in Vegetables a Principle of Life; and this is differently ſeated.

A certain Author ſays, generally ſpeaking, this Principle of Life is ſeated exactly between the Trunk and the Root; and this is obſerv'd to be the Place of its Poſition, in all or moſt of the *Seminiferous* Tribe; for if the *Oak* be included in that general Title, and the Body of it be cut down near that Place, it is odds if it ever ſhoots again, or at leaſt to any Purpoſe.

In ſome Plants it is only in the *Roots*; ſo that let them be cut into as many Pieces as reaſonably may be, if theſe Pieces are but planted in the Ground, they quickly grow; as is ſeen in the *Elm*, *&c.* and in abundance of edible Roots and Flowers.

In ſome, it is ſeated both in the Roots, and all over the Trunk and Branches; as, in the *Vimineous* or *Willow*-Kinds; which, if they be cut into a Thouſand Pieces, it is ſcarce poſſible to deſtroy or kill them, unleſs they are ſplit in the Middle, and ſcarcely then; for if you plant them in the Earth but the Length of three or four Inches, either the Roots or Branches will certainly grow again.

In ſome, it is ſeated intirely in the Body, Branches, or Leaves; and of this Kind are many of the Exotick Plants, which being of a ſucculent Nature, if the *Trunk* or *Branches*, or the *Leaves* and *Stems* be put into the Ground, they will ſtrike Root immediately and grow; as in the *Cereus's*, *Ficus's*, *&c.* nay ſo ſtrong is the Principle of Life in this Kind of Plants, that if they be hung up a conſiderable Time without any *Earth*, *Water*, *&c.* they will maintain their natural *Verdure*, and alſo this Principle of Life admirably, by their ſucculent Quality.

The Uſe of this Principle of Life, is accounted to be for the Concoction of the indigeſted Salts, which aſcend thro' the Roots, where they are ſuppos'd to aſſimilate the Nature of the Tree they are helping to form; tho' perhaps the Root may likewiſe aſſiſt in the Work.

Theſe Things being pre-ſuppos'd in the *Spring* of the Year, as ſoon as the Sun begins to warm the Earth, and the Rains do melt the latent Salts, the whole Work of *Vegetation* is ſet on Foot: Then the emulgent Fibres ſeek for Food, which has been prepar'd as aforeſaid.

It is very rational to ſuppoſe, that a great Part of the Roots are formed under Ground during the *Winter*-Seaſon, becauſe in all Lands there is always an innate Heat, which ſeems to be a natural, vital Quality, or nitrous Fermentation.

That a Tree forms its Root firſt.] A great Part of the *Roots* are form'd under the Ground during the *Winter*-Seaſon, there being always an innate Heat in all Lands, which this Author takes to be a natural, vital Quality, or nitrous Fermentation.

The *Roots*, by ſeeking out, and aſſuming thoſe Salts, are immediately (by the Courſe of Nature, and the attractive Virtue of the Sun) drawn upwards to the vital Principle; and after Concoction, do aſcend ſtill higher into the Stem, and break out firſt in the Buds, the ſhelly and tendereſt Part of the whole Machine, and afterwards diffuſe themſelves into the Leaves, Flowers, Fruits, *&c.* which lie invelop'd therein according to their natural Frames, *&c.*

There are ſome, which ſay there are three Kinds of *Sap* different from each other in Rarefaction and Purity, which aſcend from the Root; from which are compos'd the Branches, Leaves, Flowers, and conſequent to them the Fruit; and that they paſs in different Channels.

But others again, ſuppoſe it is rather all of one Kind; and that it aſſumes its proper Office by a hidden Inſtinct in Nature, juſt as it enters the Boughs or Branches, whereon the Fruit is to be; they being by ſome caſual Sprouts of the laſt Year, already form'd for that Purpoſe; or probably that it is rarefied by the Paſſage thro' the Stem.

And tho' there are ſome that do ſuppoſe, that ſubterraneous Fires are concern'd in the Work of *Vegetation*, or the Growth of Plants; yet, as upon the beſt Obſervation that hath been made, none can pretend to have diſcovered any Heat or Fumigation to iſſue from the Surface or Bowels of the Earth, adequate to the meaneſt artificial Fire: Therefore it is plain, that the Sun is the Principle, and ſo may be call'd the Father of *Vegetation*, and the Earth the Mother; the Rain and Air being neceſſary Coefficients in this ſurprizing Work of *Vegetation*. See the Articles, *Sun*, *Earth*, *Air*, *Rain*.

Mr. *Bradley* ſays, as in animal Bodies there are ſeveral Degrees of Juices, which are refin'd more or leſs, as the Veſſels they paſs through are larger or ſmaller, or perhaps according to their Figure; ſo alſo Plants are found to have Veſſels of different Functions, which do, like Filters of different Kinds, ſeparate and alter the Juices which paſs thro' them; ſo that they may be diſtinguiſh'd ſeparately by the Senſes, although they do all originally proceed from the ſame Fund of indigeſted Juice in the Root: And by how much theſe Juices have the more Time to open and nouriſh the ſeveral Parts they paſs through; ſo both the Parts and Juices become more perfect, and approach nearer to the Point of Maturity, which is fix'd by Nature for their Perfection. In this Progreſs, thoſe Parts which are to be acted upon, ripen equally, as thoſe do that are to act.

In the Anatomy of Plants, by *Malpighius* and Dr. *Grew*, by the Help of a Microſcope, Parts in each diſtinct Plant, of a very different Frame and Texture one from another, may be diſcover'd; from whence it may be concluded as certain, that thoſe Parts ſo differing one from another, are by Nature deſign'd for different Functions. For it would be as unreaſonable to imagine, that all the Parts of a Plant do the ſame Office, as to ſuppoſe that an Artery acted the ſame Part as a Muſcle, a Bone the ſame as an Artery, a Muſcle as a Vein, or a Vein as the Lungs of an Animal.

Dr. *Grew* ſays, That all Kinds of *vegetable* Principles are at the firſt received together in a Plant, and are ſeparated afterwards; *i. e.* they are filtered ſome from others, in very different Proportions and Conjunctions by the ſeveral Parts; ſo every Part is the Receptacle of a Liquor, become peculiar, not by any Tranſformation, but only by the Percolation of Parts out of the common Maſs or Stock of *Sap*; and thoſe that are ſuperfluous in any Plant, are diſcharged back by *Perſpiration.*

He alſo aſcribes to every different Kind of Veſſel a different Office; and ſays, the *Lymphaducts*, which carry the moſt watery Liquor, are plac'd on the inner Verge of the Bark, next to the Air-Veſſels, as Mr. *Bradley* ſuppoſes, from their Smallneſs, which will not admit the Paſſage of any Fluid denſer than Air. That the *Lactiferous* Veſſels uſually ſtand in the Middle, between the inner and outer Verges of the Bark. Theſe which Dr. *Grew* calls *Lymphaducts*, Mr. *Bradley* takes to be what himſelf calls the new-forming Veſſels, which are annually produc'd, and help to increaſe the Bulk of the Tree. As for thoſe he calls *Lactiferous* and *Reſiniferous* Veſſels, Mr. *Bradley* ſuppoſes, that they ſerve to return the ſuperfluous *Sap*.

He adds, That it is obſervable, that the Veſſels are the chief Viſcera of Plants; and as a Plant has ſeveral Liquors, ſo thoſe Liquors become differently qualified from the divers Kinds of Veſſels; and that as the Viſcera of an Animal are but Veſſels conglomerated; ſo the Veſſels of a Plant are *Viſcera* drawn out at Length.

It is alſo remarkable in many Caſes, that the Multitude and Largeneſs of the Veſſels do produce a ſweet and winey *Sap*; and the Fewneſs and Smallneſs of the Veſſels, produce an oily and aromatick *Sap*.

Dr. *Grew* is of Opinion, That the Odours in Plants do chiefly proceed from the Air-Veſſels that are in the Wood; not but that the others do alſo yield their Smells, which is moſt plain to be perceiv'd in Plants that are freſh, undry'd and unbruiſed: For he ſays, that the Air bringing along with it a Tincture from the Root, and from the ſeveral organical Parts, and at laſt entering the Concave of the Air-Veſſels, it conſiſts there.

Mr. *Bradley* allows, that it cannot be deny'd, but that the *Effluvia*, which can be admitted into the Wood-Veſſels, may give a Smell to the Wood; and but that as that *Vapour* paſſes thro' Veſſels which have a different Structure, ſo as to alter the Form of its Parts; ſo in every one of its Changes it will yield a Smell different from the reſt; the Smell of the Wood will differ from that of the Bark, the Juices in the one being more eſſential than the other; but yet both being bruiſed and mixed together, yield a Scent different from either of them ſingly. And likewiſe the Leaves give a Scent that is different from either of the former; and ſo alſo do the Flowers from that in the Leaves, and alſo the Fruit from that in the Flowers.

He adds, That it is alſo neceſſary to the Nutrition of Plants as well as Animals, that there ſhould be a Concurrence of two ſpecifically diſtinct Fluids. And a learned Author ſays, (and with very good Reaſon) that theſe are interwoven in every Part of a Tree in their proper Veſſels, like *Linſey Woolſey*; ſo that every (the leaſt) Part of *Sap*, is impregnated with divers eſſential Tinctures, and is continually filtred from the Fibres of one Kind, to thoſe of another.

Hence we may not only learn, That in all Plants there is a Neceſſity of two ſpecifically diſtinct Juices to act one upon another; but that theſe are filtred or refin'd in their Action, and alſo *alter'd and* chang'd, according as the Parts are that they paſs thro'; and alſo that they ripen and become prolifick ſooner in ſome Parts than in others. And they are alſo in ſome Parts more grateful to the Smell than they are in others.

And beſides, this *Mixing*, *Filtering*, and *Ripening* of the Juices ſooner or later, gives the Difference of *Colour* to the ſeveral Parts of the Plant, and is ſeemingly the Occaſion of moſt of the Alterations found in ſeveral Parts of Trees.

Dr. *Grew* is of Opinion, that the chief governing Principle in the Juice of Plants is the *Saline*; which *ſaline* Principle, he ſays, muſt be underſtood as a *generick* Term, under which divers Species are comprehended. The vegetable Salts ſeem to be four, *viz.* the *nitrous* and the *acid*, *alkaline* and *marine*.

The *nitrous Salts* ſeem to be aſſign'd by Nature chiefly for the Growth of Plants.

The Parts of a *Seed* being ſo minute, that no perfect Diſcovery can be made by the naked Eye, of the firſt Rudiments of the Plant that is formed out of it; it is therefore neceſſary to make Uſe of a *Microſcope*, to greaten the Objects, which the moſt curious *Malpighius* has done with that Accuracy, as to render further Enquiry and Examination needleſs. His Obſervations are to the Purpoſe following.

The Eggs (or Seeds) of Plants being excluded out of the *Egg-bed* (called a *Pod* or *Husk*, or by whatever other Name diſtinguiſhed) requiring further foſtering and brooding, are committed to the Earth. When this kind Mother hath receiv'd them into her Boſom, ſhe doth not only give them Incubation or Brooding, by her own halituous Vapours, joined with the Heat of the Sun-beams; but doth, by Degrees, abundantly ſupply what the fruitful Seed ſtands in Need of: For ſhe every where abounds with little Channels or ſinnous Paſſages, in which the Rain-Water, ſatiated and impregnated with fruitful Salts, runs like the Blood, and Chyle in the Arteries of Animals. This Moiſture is tranſcolated or ſtrained through the Pores or Pipes of the outer Rind or Husk (correſponding to the Membranes that inveſt the Embryos of Animals) on the Inſide of which lie the thick ſeminal Leaves, which are commonly two (tho' in that which I ſhall inſtance anon, is but one) that anſwer to the *Placenta* or Womb-Cake in Women, or to the *Cotyledons* in Brutes.

For the Subſtance of theſe two Seed-Leaves conſiſts of a great Number of little Bladders or Bottles, and of *Navel-Veſſels*, or a *Navel-Knot:* Into the Bottles is receiv'd the fruitful Moiſture of the Earth, that is ſtrained thro' the Rind of the Seed, which makes a ſmall Fermentation, with that proper Juice that was inherent originally in the Seed-Leaves; and this fermented Liquor is convey'd by the Umbilical Veſſel to the Trunk of the Plant, and to the *Gem* or *Bud* that is continued to it; whereupon a Vegetation and Increaſe of the Parts ſucceed.

This, in ſhort, is the Manner of Proceedure in the Vegetation of Plants. He exemplifies this, by a Grain of *Wheat*, as follows:

The firſt Day after a Grain of *Wheat* is ſown, it grows a little *Turgid*, and the *Secundine* or Husk gapes a little in ſeveral Places. The Body of the Plant being continuous with the conglobated Leaf (which is called the Fleſh of the Seed that makes the Flower) ſwells, not only with the *Gem* or *Sprout*, that is with the future Stem, which is opened, and waxeth *green* by Degrees; but alſo the lateral Roots do bunch out a little; and likewiſe the lower Root becoming *green* jets ſomewhat out; whence the *Placenta* or Seed-Leaf becomes looſe, and gapes. The Body of the Plant is continued and knit, by the *Navel-Knot*, to the conglobulated Leaf, which ſupplies Matter for Vegetation.

In two Days, the *Secundine* or Husk being broken through, the Stem or Top of the future Straw appears on the Outſide of it, and with its Top is a little Diſtant from the Leaf (that is continued to it) growing upwards by Degrees. The Seed-Leaf guarding the Roots, becomes *turgid* with the little Bladders, and puts forth a *white* Down; this Leaf being pull'd away, you may ſee the Roots of the Plant made bare, of which the long one is very apparent; but the two others are more obſcure. The Top of the Stem is crooked; and within, the *Gem* or *Bud*, and future Leaves and Stalk lie hid. Between the *Roots* and aſcending *Stem*, the Trunk of the Plant is knit by the *Navel-Knot* to the Flower-Leaf, which is very moiſt, but as yet keeps its *white* Colour, and its proper and natural Taſte.

The *third* Day approaching, the Pulp of the conglobulated or round Leaf becomes *turgid* with the Juice that it has received from the Earth fermenting with its own genuine Juice. The Plant increaſes in Bigneſs, and its *Bud* or *Stem* becoming taller, from *whitiſh* turns ſomewhat *green*; and the lateral Roots break forth *greeniſh* and Pyramidal from the gaping Sheath, which adheres cloſely to the Plant. The lower Root becomes longer and hairy, having many Fibres growing out of it; at the ſame Time in ſuch Seeds as are more quick and forward, the lower Root is larger, growing *green* in its End, and the Side-Roots ſprout out of the Sheath that inveſted them; which Sheath ſwelling with *white* and thick Bladders is continued, like a Bark with the outer and inveſting Subſtance.

Abundance of hairy Fibres hang all along upon the Roots, except upon their Tips; thoſe which grow about their Baſis are longer; and thoſe which follow, become ſhorter and ſhorter. They twirle about the ſaline Particles and little Lumps of Earth, like *Ivy*, whence they grow curled; and above the lateral Roots there break out two other little ones. The Stem being roundiſh, and waxed bigger, grows ſtrait upwards.

Towards the *End* of the *third* Day, the Stem tending upwards makes (as it were) a right Angle with the ſeminal Leaf, lying horizontally: It is ſlenderer, and more longiſh; and its outer Cover is *white*, and bright or tranſparent, guarding the tender or *greeniſh Gem*. The laſt Roots ſet out more; and the other three growing larger are cloathed with a Down, that ſtraitly embraces the Lumps of Earth: This Down is ſo luxuriant, eſpecially where it meets with any Vacuity, that its Hairs uniting with one another make a Kind of Net.

The conglobulated or Flower-Leaf is ſofter, and (as it were) milky; whence, if it be bruiſed, it yields a *white* and ſweetiſh Juice, like Barley-Cream: If you pull the Plant from it, the Root and Stem of the Plant may be plainly ſeen: Alſo the intermediate *Navel-Knot* appears, whoſe outer and inveſting Part is more ſolid, like Bark; but the inner Part is more ſoft and marrowy.

At the End of the *fourth* Day, the Stalk tending upwards (the Outer or Sheath-leaf being looſened) puts forth the *Stable*-leaf, that is *green* and folded. Below the Roots before deſcribed, grow longer; and there appears a new Tumour (ſometimes two) of a future Root. The *Seed-Leaf* alſo, that hangs upon the Plant, begins to fade, whoſe remaining Juice is, notwithſtanding, as *white* and uncorrupted. If you cut the Stem aſunder, the Riſe of the tender Stalk appears to be from the *Navel-Knot*, from which alſo the Roots take their Beginning: Likewiſe outwardly, the *Sheath-Leaf* is to be ſeen, wherein the Stalk and its Leaves, and the Riſe of the Roots are unfolded.

About the *Sixth* Day, the *Stable-Leaf* being looſened, the Plant mounts upwards, the thick *Sheath-Leaf* as yet cleaving about it like a Bark. The *Seed-Leaf* on its Outſide is ſinuous or full of Crinkles, and faded: This being cut, or freed from the Husk or *Secundine* the Fleſh or *Pericarpium* is not alike all over; for its outer Part, whereby the Outſide of the Seed or Grain is heaved up, is more ſolid, and looks like a concave Leaf. It hath the ſame Appearance alſo in that Part whereby it ſticks, and is continued to the *Navel-Knot:* But its Inſide is fiſtulous, and fill'd with Humour, eſpecially that Part of it that is next to the *Navel-Knot*.

The Leaves being pull'd off, the Roots torn, and the Flower-Leaf remov'd, the Trunk appears; in which, not far from the Roots, the *Navel-Knot* bunches out, which is ſolid and hard to cut: Above, there is the Mark of the *Sheath-Leaf*, that was pulled off; under this, as in an Armpit, the *Gem* is often hid; beyond which, there is likewiſe a Knot, with the Scar of the torn off Leaf; and in the Top, the ſoft Gem is kept; and thus the whole Bulk of the future Stalk is had in this *Compendium*.

The hinder Part alſo of the Plant ſhews the Breakings-forth of the Roots; likewiſe the faded *Placenta* or Seed-Leaf, and the Scar of the Sheath-Leaf, with the following Knots and Gems.

After the *Eleventh* Day, the Seed-Leaf, often as yet ſticking to the Plant, is crumpled, and almoſt corrupted; for being opened, it yields an Humour with airy Bubbles: Within, it is hollow, and about the *Secundines*, the mucous and *white* Subſtance of the Seed, being continued, even to the *Navel-Knot*, forms a Cavity. All the Roots becoming longer, put forth new Branches out of their Sides; and the Stalk, tho' it hath taller Leaves, yet for the moſt Part is no longer than the Trunk; for as yet the Knots and Gems being very near to one another are not far from the *Navel-Knot*.

Sometimes the Vegetation making Progreſs, the Spaces betwixt the Knots are larger; and the Sheath-Leaf being pull'd off the Side, a Knot appears, out of which there ſprouts forth a Leaf, that foſters the aſcending Stem. In the mean Time, the ſeminal Leaf withers, and is emptied on its Inſide; and if it be preſs'd, it yields nothing but Water: The *white* and ſolid Internode (or Space between the Knots) is lengthened, and new *Gems* appear; and the middle Root grows to be ſeveral Inches long.

After a *Month*, both the Roots and Stalk being grown longer, new *Buds* appear to be breaking forth of the firſt Knot; and very little Tumours bunch out, which at length break forth into Roots; for Roots ſprout out ſo eaſily, that ſometimes if the firſt Roots be pulled off, Abundance of new ones will riſe in their Stead.

Alſo at the ſame Time the Stem being eſtabliſhed with its uſual Roots, puts forth new ones, which break through even the Sheath-Leaf that cloaths it: And it alſo riſes up with a *white* Joint that is full within. Above the Roots, from the ſame Knot, grow two Buds, guarded with their proper Leaves; and the intermediate Stalk runs upwards.

10. VEPRICOSE.

VEPRICOSE ſignifies full of *Brambles* or *Briars*.

11. VERGE.

THE Edge or Outſide of a Leaf or Flower.

12. VERMICULATION.

VERMICULATION, the Breeding of Worms, in Herbs, Plants, or Trees.

13. VERMIPAROUS.

VERMIPAROUS is producing or breeding Worms.

14. VERMIVOROUS.

VERMIVOROUS is devouring or feeding on Worms.

15. VERNAL, *or* VERNOUS.

VERNAL or *Vernous Leaves* are ſuch Leaves of Plants as come up in the *Spring*.

16. VERTICILLATE.

VERTICILLATE Plants are ſuch as have their Flowers intermixt with ſmall Leaves, growing in a Kind of Whirles about the Joints of a Stalk, as *Penny-Royal*, *Hore-hound*, &c.

17. VINES.

THE following is a Catalogue of the Grapes that are moſt eſteemed in *France*.

1. The *Acorn* Grape, which is ſo call'd, becauſe the Fruit has the Shape of an *Acorn*, it is of a yellow Colour, is very ſweet and keeps well.

2. The *African* Grape; of theſe there are two Sorts, the *red* and *white*; it is a very large Fruit, the Berries being like Plums, and the Bunches are of an extraordinary Size; it is in Shape rather long than round, a little flat towards the Point; the Wood and Leaf are remarkably large, and it requires a great deal of Sun.

3. The *Apricock* Grape is ſo called becauſe it is *yellow* and gilded like an *Apricock*, it is of the tribe call'd *Bourdelais*.

4. The *Auſtrian*, or *Parſley leafed* Grape is a *white* ſweet Grape, the Vine a pretty good Bearer; but the juice of the Grape is not very vinous.

5. The *Beaune* Grape is of a *whitiſh* Colour, pretty good; the Vine bears well.

6. The *Birds Bill* Grape, or *Bec d' Oſean* is large, very long, and pointed at both ends, and is called in *Italy*, *Pizutelli*.

7. The *Blanquet de Lemois* is a *white* tranſparent Grape, as clear as Glaſs, is of a pretty long and large Berry, and has an excellent Juice. The Vines bear well.

8. The *Bourdelas* is of three Kinds, the *black*, the *red*, and the *white*; the Bunches of the Grapes are very large, but are fitter for Verjuice or Sweetmeats, than eating. It is the beſt Vine for grafting many Sorts of Grapes upon, eſpecially ſuch as degenerate, as the *Currant* Grape, the *Damask* Grape.

9. The *Bourguignon* is a pretty large black Grape, fitter for Wine than eating. The Vine is an extraordinary Bearer.

10. The *Chaſſelas*, or *Muſcadet* Grape is an extraordinary large Fruit, fit either for eating, drying, or making Wine. The Fruit is not very full of Seeds.

11. The *black Chaſſelas* is not ſo common as the former, but has moſt of its Qualities.

12. The *Currant* Grape is ſomething larger than the former, is a very good fruit, has no Seeds. The Vine is apt to run, and therefore ſhould be pruned longer than other Vines.

13. The *Damask* Grape is an extraordinary Fruit; the Bunches are very long and large, and the grapes larger than ordinary. They are of an *Amber* Colour, and have but one Stone in each. They are apt to run, and therefore require long pruning; there are of this Sort the *red* and the *white*.

14. The *Dyers* Grape has the Fruit very much preſs'd together upon the Bunches, and is of a very *black* Die: The chief uſe of this Grape is to heighten and colour the Wine.

15. The *Frementeau* Grape is of a *reddiſh grey* Colour; the Bunches are pretty large, and the Berries are cloſely ſet together. It has a hard Skin, but an excellent Juice. The excellent Wine call'd *Sillery* Wine is made of this Grape.

16. The *Frontiniac white Muſcat* Grape, is a large long Grape, full of Seeds; is excellent either for eating raw or in ſweet Meats; it dries well either in the Oven or in the Sun.

17. *Le Gamet* is of two Sorts, the *white* and the *black*; it is an extraordinary Bearer; but the Wine is ſmall, and the Plant laſts but a few Years.

18. The *Jeneting* Grape is call'd alſo the *Orleans Muſcadine*, is very ſweet and not unlike the *Melie*, but rather like the *Malmſey* Grape; it is apt to degenerate.

19 The *Italian* Grape is of two Sorts, the *white* and the *blue*; the Bunches are large and long, and the Berries longiſh, and freely diſpoſed upon the Bunches. It does not ripen well.

20. The Grape without Kernels is a Kind of Chaſſelas, but the Fruit is not ſo large, and

a little ſharp; however, it is extremely good, prepar'd in an Oven, as it has no Kernels; for which reaſon ſome call it the *great Currant* Grape.

21. The *Magdalen* Grape is the earlieſt ripe, but is not ſo good as it is rare. The Skin is thick.

22. The *Mantua* Grape is ripe about the Beginning of *Auguſt*, the Fruit, as well as the Kernel, in ſhape is rather long than round, and the Colour is *yellow* like *Amber*, and the Juice is very rich.

23. The *Malmſey Muſcadine* is one of the richeſt musked Grapes, ſurpaſſing every other Kind in high perfume.

24. The *Malmſey* Grape is of a *grey* Colour, bears well; the Berry is ſmall, but extremely rich and high flavoured. It ripens early, and is ſo full of Juice, that he eſteems it the moſt melting of all Grapes.

25. The *red Malmſey* Grape is a more rare, but a later Grape than the other two.

26. The *Maroquin* is a large blue Grape, which brings Bunches of Grapes of an extraordinary Size, and the Berries being large, round and hard; the Leaves are *reddiſh* and vein'd with *red*. One Sort of it bears in an extraordinary manner, and bloſſoms three times in a Summer. The *Midſummer* Fruit ſometimes comes to Perfection, but the third Bloſſoms come to nothing.

27. The *white Melie* Grape is [illegible] eating Fruit, and one of [illegible] for the Vintage; the Juice is ſweet, bears well, and will keep. It is one of the beſt for drying in an Oven.

28. The *black Melie* Grape is not ſo good as the former for eating, nor makes ſo ſtrong Wine.

29. The *green Melie* is very rare, and bears well, and is not apt to run. The Wine that is made of this Grape never changes *yellow*.

30. The *Millers* Grape, ſo call'd becauſe of its *white* powdered Leaves, this ripens next after the early *Morillon*, is much better than that; bears well and makes excellent Wine.

31. The *Moraculous* Grape is a Sort of *red Bourdelais*; it is a large round Grape, comes early; the Juice is ſweet and pleaſant, and makes excellent Wine. The Fruit has a very good Appearance; and when it is ripe the Leaves are finely marked with *red*; which is very frequent to *black*, *blue* or *red* Grapes. This is call'd the *green Grape*, and the St. *James's Grape*.

32. The *Morillon*; ſee the *Magdalen* Grape.

33. The common *black Morillon* is a very ſweet Grape, and makes good wine.

34. The *white Morillon* is a very good Grape, but its Skin is harder than the former.

35. The *Muſcadel*, or *Chaſſelas*, is an excellent large Grape either for eating raw, drying or making Wine; and it is not too full of Seeds.

36 The *Muſcat de Ribezalte*, is a Fruit richly musked, has ſmall Seeds and ſweet Juice;

but is apt to run, and frequently degenerates to the *Currant*-Grape, and ſometimes has no Seeds.

37. The *white Piedmont Muſcat*, is a long Fruit, has ſmall Seeds, and a Pulp more unctuous than the *Frontiniac white Muſcat* Grape.

38. The *red Muſcat*, or *Muſcadine* Grape, call'd the *Coral Muſcadine* from its lively Colour, has the ſame Qualities of that number.

It requires a good deal of Sun to bring it to Perfection, but then it is one of the beſt Grapes.

39. The *black Muſcadine* Grape is larger than the preceding, very full of Seeds, but not ſo high taſted, but the Juice is very ſweet; it bears well, and the Fruit ripens very forward,

40. The *Violet Muſcadine* Grape is of a clearer *black* tending to a violet Colour. The Fruit is long, and the Seeds are large; it is richly musked, and one of the beſt.

41. The *long Muſcadine*, or the *late Italian Muſcadine* Grape, is very large and long, but requires a warm Expoſure to ripen its Fruit; but if the Seaſon does not half ripen it, it will make excellent ſweet Meats, or may be eaten raw. It is much higher perfum'd in ſweet Meats than any other Grape, the Fire ſupplying that musked Flavour, which the Sun did not afford it.

42. The *Sanmoireau* is a *black* Grape, excellent for eating and making of Wine. It is a longiſh firm Fruit, and grows free from the Bunches.

43. The *Sauvignon* is a *black* Grape, large and long; it is early ripe, and is one of the beſt Grapes.

44. The *Sauvignon Blanc* has the ſame Qualities of the former, but they are neither of them very well known.

45. The great *black Spaniſh* Grape brings large Cluſters well furniſhed with large Grapes, fit for the Table. From this Grape is made the moſt excellent *Spaniſh* Wine.

46. The *Surin* is one of the *Melie* Tribe, well taſted, and its fruit a little pointed.

47. The *Switzerland* Grape is rather rare than good; the Cluſters are long and large, and the Fruit is ſtriped with *black* and *white*, and ſometimes half one and half the other.

48. The *Wolf's Tooth*, or *blue Pizutelli* is a long pointed Grape, a handſome Fruit, well taſted, and keeps well.

The *Vines* which Mr. *Mortimer* recommends as the moſt proper for our *Engliſh* Climate are the *ſmall black* Grape, which ſome call the *Curran*, or *Cluſter* Grape, which he accounts the moſt forward of the *black* Sort; the *white Muſcadine*, the *Parſley* Grape, and the *Muſcadella* which is a *white* Grape; but not ſo big as the *Muſcadine*; but it ripens as ſoon, and the *white* and *red Frontiniac*, which requires to be planted in a very warm Expoſure.

Ground, becauſe, if they were to run cloſe, too much Wet would ſpoil and wet the Fruit; but the nearer Grapes grow to the Ground, if they do not touch it, the riper and ſweeter they will be, and the ſtronger the Wine.

This Method muſt be continued from time to time, in Proportion to the Strength of every *Vine*, in order to preſerve young Shoots every year, for bearing the Summer following, cutting away all the old ones, which, if they did remain, would rob the Plants of their Strength.

If after this pruning, they are not inclinable to bear large Bunches, help the Ground with the Manure before directed.

A Vineyard thus managed, will in five or ſix Years after planting produce good Store of Grapes, which, when gathered for making Wine, ſhould be full ripe, and in fair Weather.

Mr. *Bradley* inſtances the celebrated Vineyard at the *Bath*, which contains ſix Acres of Ground, and is ſituated on the Side of a ſteep Hill, facing the *South*; the Ground being very rocky and ſtony. In this Vineyard, the Vines are planted in Lines about ſix Foot one from another, and are manag'd much after the Way they manage them in *Germany*.

The Sorts of Grapes that are planted in this Vineyard are the *white Muſcadine*, and the *black Cluſter* Grape, which, altho' they are not the proper Grapes for making Wine, nor the moſt early in ripening, yet about four or five Years ago, made ſixty Hogſheads of Wine.

Tho' indeed in the Year 1321, there was not made above three Hogſheads: And in 1722, he being there about the 26th of *July*, the Vines were hardly in bloſſom, ſo that little could be expected from them that Year; yet there being a great deal of good bearing Wood upon them at that Time, he did ſuppoſe, that they would produce a good Crop in the Year 1723, eſpecially it proving an extraordinary Summer.

He adds, that he was not a little ſurpriz'd to find the Grapes in that Vineyard ſo backward on ſo fine a Situation, when Mr. *Fairchild*, at *Hoxton*, had ripe Grapes more than ten Days before, tho' his Ground is upon a ſtrong Clay, and in a flat Country. And that the *Grapes* in the Vineyard of Mr. *Warner* at *Rotherhithe*, altho' they had not the Help of ſo favourable a Situation, were then near full grown. But he conjectures this difference proceeded from the Sorts of Grapes as well as from the Management of them.

He tells us that Mr. *John Warner* at *Rotherhithe* has a little Vineyard which is ſo modelled, that it ſerves even as an Ornament to his Parterre; and is an Example of *Vines* ſo judiciouſly ordered, that tho' there was not an hundred *Vines*, and ſome of them no more than the ſecond Years Growth, and about four Foot high, and ſome of them not above two Foot from the Ground, 95 Gallons of Wine were made from them. That he taſted of the Wine; and is of Opinion, that if it were kept to the Length of Time, that *Old Hock* is generally kept, it would be as ſmooth and as ſtrong to the full; but as it was at that Time, it had the *Burgundy* Flavour, being made from that Sort of *Grape*, and exceeded thoſe Wines which grew about *Beauvois* and *Clairmont*, or in any Vineyard on this ſide *Paris*.

He obſerves, that an hundred Stands of *Vines*, in Mr. *Warners* Vineyard, two Plants to a ſtand in their firſt Year of bearing a Crop made 95 Gallons of Wine; and the ſmalleſt Bearer among them in the Year 1723 had more than 75 Bunches of *Grapes*, and many of them more than an hundred, and yet the bearing Part of each *Vine* did not ſeem to take up much more ſpace than a Buſhel-Meaſure, and he had taken the Pains to calculate what might be the product of theſe hundred *Vines* at 60 Bunches a *Vine*, weighing a quarter of a Pound a piece, and finds it to be 117 Gallons one Pint and a half.

He ſays, that by comparing the Produce of the Vineyard at the *Bath* with that of Mr. *Warners*, we may find how much the Sort of *Grape* ſhould be conſidered, that is deſigned for the making of Wine: For it is found by Experience, that ſome kind of *Grapes* will yield near half as much more Juice as others, tho' the ſame Meaſure of each be carried to the Preſs; and he is of Opinion, that the *black Cluſter - Grape* yields the leaſt Juice of any.

As for rich Wines, ſuch as *Tokay*, *Muſcadel*, and *Frontiniac*, he does not propoſe the making them in *England*, becauſe they require the Benefit of a Wall, and will not ripen in the open Ground well.

He ſays, that a Chalk Hill, if planted with *Vines*, will certainly reflect as much Heat upon the Fruit as any Wall whatſoever. And it is very well known, that the Cold in thoſe Parts of *Germany* where the Rheniſh Wines are made is much more ſevere than in *England*, ſo that we need not be afraid of too much Cold in the Winter, and may reaſonably expect as much Warmth in Summer, if not more and ſo our Vineyards may afford us as good Wine as what we uſually have from the *Rhine*, and ſome Places in *France*.

And as for *Rheniſh* Wines, when they are newly made, they are ſo ſour, that they are not fit to drink, but after they have ſtood ſeveral Years, they afford us that incomparable Liquor which is call'd *Old Hoc*; whereas ſweet Liquors are apt to turn ſower by being kept.

Way of Propagation.] *Vines* may be increaſed either by *Layers* or *Cuttings*; the firſt is done by laying down the young Branches as ſoon as the Fruit is gather'd, or by making Plantations of *Cuttings* at that Time, according to Mr. *Bradley*; but Mr. *Mortimer* ſays, any time in the Winter before *January*, tho' the former ſays, he has frequently made *Layers* in *March* and *April*, which have been fit to tranſplant the Midſummer following; but you muſt always obſerve to let a Bud or two of the *Layer* be under ground; for it is from thoſe Buds only that the Roots put forth.

Of raiſing Vines in Pots.] Mr. *Bradley* ſays, That he has known it to have been frequently practiſed to draw a young Branch through the Hole at the bottom of a Garden-Pot about *Chriſtmas*, and then having fill'd the Pot with Earth it has taken Root, and the next *Michaelmas*, it has been cut from the Mother Plant with ripe Fruit growing upon it.

Theſe *Vines*, which have been rais'd in Pots after the Manner before going, he ſays, if they are ſheltered from the Weather in a *Green-Houſe*, or ſome ſuch like Place, will hold their Fruit good almoſt till *Chriſtmas*. And the *Vines* may be brought in their Pots and ſet on the Table with their Fruit growing on them in a Deſert.

Of raiſing them by Cuttings.] You may make Plantations of *Cuttings* as ſoon as the Fruit is gathered, minding to let a Bud or two of the Cutting be under Ground, as before directed concerning the *Layer*.

Mr. *Mortimer* ſays, *Vines* will often grow of *Cuttings*, only ſtuck in the Ground in a moiſt Place, being well watered in the Summer, if it prove a dry Time. And that they may alſo be raiſed of *Suckers*.

Of the Situation.] Mr. *Mortimer* ſays, they muſt have a warm Situation and good Shelter, and this will be beſt obtain'd by the Declivity of an Hill, lying to the *South*, eſpecially, if it be well ſheltered from the *North*, and ſurrounded with a good Brick-Wall; the Reaſon is, becauſe Hills are not ſo ſubject to the Morning Fogs, nor infectious Miſts, as low Grounds are; and beſides, a Land which is flat does not ſo ſoon participate of the Benefit of the riſing Sun as Hills do, nor does it ſtay ſo long upon them in the Evening: For as *Vines* above all Things affect a dry Soil, eſpecially after the Fruit begins to be formed, and approach to its Maturity, there is nothing more noxious to it, than to be infected with the cold heavy Damps of theſe Fogs at that Seaſon. And in this Caſe it is as much as any thing elſe, that more Southerly Climates have the Advantage of us.

Mr. *Switzer* tells us, that Vineyards may be ſo cultivated in *England* as to produce large Quantities of *Grapes*, and thoſe ripened to that Degree, as to afford a good and ſubſtantial Vinous Juice. This has been prov'd in that in ſeveral Parts of *Sommerſetſhire* there are at this time flouriſhing Vineyards; and alſo the Vineyard in that Country of the late Sir

William Baſſet has every Year furniſhed ſome Hogſheads of good bodied and palatable Wine.

That it is not ſo much owing to the Inclemency of our Air in *England*, that *Grapes* are generally ſo much inferiour to thoſe of *France* and other Climates that are hotter, as it is the want of an exact Culture, tho' indeed the beſt Management will not anſwer Expectations without a tolerable Seaſon to ripen the Fruit; and ſometimes the Variouſneſs of the Weather in the Summer will unavoidably render the Fruit ſower and immature.

In order to plant a Vineyard, both Mr. *Mortimer* and *Switzer* directs to plow up the Swarth in *July*, when the Earth is very dry and combuſtible, and to burn or denſhire it; and in the *January* following to ſpread Aſhes over it. And having thus prepared the Ground to make Trenches croſs the Hill from *Eaſt* to *Weſt*, and by being thus poſited, the riſing and ſetting Sun will paſs through the Intervals; which it would not do if they were planted in any other Poſition, nor would the Sun be able all the Day to dart its Beams ſo well upon the Plants.

When you ſet the Plants, which Mr. *Mortimer* recommends to be in *January*, as the beſt Time, make a Trench by a Line about the Depth of a Foot, and let the Plants be ſet in it at about three Foot Diſtance one from another every way, and about half a Foot deep. Trim the ſuperfluous Roots from the Sets, and do not leave above three or four Eyes upon that Part of them that are out of the Ground and let them be ſet ſloping, as Quick is uſually planted, that they may point up the Hill.

Having planted them, lay long Dung or Straw of a reaſonable Thickneſs on the Trenches, to cover the Earth, and to ſecure the Roots from the dry piercing Winds, which elſe would be injurious to them, and alſo from the ſcorching Heat of the Sun in the Summer time. You muſt hough and weed them well, and water them if need be.

Of pruning Vines.] The new ſet *Vines* are not to be prun'd till the *January* next after they have been planted, and then all the Shoots are to be cut off as near as you can, except that you muſt ſpare one of the moſt thriving ones, leaving upon it only two or three Buds. Which when you have done, you are to let them reſt till *May*, the ſecond Year after they have been planted. And then you muſt clear the Roots of all the Suckers, for they do but exhauſt and rob the Sets: For the ſmall Branches of *Vines* produce not any Fruit; therefore you ſhould leave no Branches but what break out of the Buds you left before.

The third Year you muſt uſe the ſame Method as you did before, cutting off all the Shoots in *January*, and ſpare only one or two of the moſt thriving; when you have done this, dig all the Vineyard and lay it very Level, but have a Care that you do not wound any of the main Roots with the Spade. As for the younger ones it is not ſo much matter; for if they be cut or wounded they will grow the thicker. And this Year you may expect ſome Fruit, and then you muſt ſupport them on the *North* Side of the Plants with Props about four Foot long.

Rub off in *May* thoſe Buds you think will produce ſuperfluous Branches. And when the *Grapes* are grown to be about the Bigneſs of Birding Shot, with your hand break off the Branches at the ſecond Joint above the Fruit, and tye the reſt to the Prop. It is better to break a *Vine* than to cut it, for thoſe Wounds which are made with ſharp Inſtruments are not ſo apt to heal, but to cauſe the *Vines* to bleed.

It is very probable that you will have three or four Shoots to every Plant the fourth Year; therefore in *December* you ſhould cut off all the Branches but one that is the ſtrongeſt and moſt thriving, and this ſhould be left about four Foot high for a Standard; the reſt are to be cut off cloſe to the Body of the Mother Plant, which you muſt tye up to the Prop till it is big enough to make a Standard of it ſelf. After that no Shoot is to be ſuffered to break out, but ſuch as ſprout from the Top about four Foot from the Ground. The *French* prune off all theſe Sprouts every Year, and only depend upon the new Sprouts, which are the only bearing Shoots.

But ſome are for leaving two or three Branches, the one ſucceſſively after the other, and ſo they always every Year cut off the oldeſt, and nurſe up the other young ones; but the Number of Branches ought to be proportionable to the Thriftineſs of the *Vine*.

He adviſes, to break off ſuch Shoots as you find too thick, in *Auguſt*, when the Fruit begins to ripen: But this ought to be done with Diſcretion, and only ſo as to let in the Sun, to come at the overſhadowed Cluſters to ripen them; but they muſt not be left too bare; for that will expoſe them too much to the ſcorching Heat in the Day-Time, and to the moiſt Dews in the Night.

If a *Vine* bleeds; rub Aſhes upon it; and if that does not do, ſome recommend the ſearing it with a hot Iron.

When you perceive, through often ſtirring of your *Vineyard*, that it is grown poor, (which you may alſo diſcover by the Crop) then prune the *Vines* according to the preceding Directions; and ſpread all over the Ground good rotten Dung, mixed with Lime; and let it lie to waſh into the Ground for a whole *Winter*: The Quantities of the Compoſition may be about ten Buſhels of Lime to a Load of Dung, and it will be the better if you ſpread on it alſo ſome Aſhes or Soot. Then about *February*, turn in this Manure, by a ſlight Digging; but turn it not in too Deep: But this ſhould not be done in a wet Seaſon, but in a dry, leſt it cauſe the Ground to bind too much, and the Weeds to grow.

He recommends the Blood of Beaſts mixt with Lime or Soot, as very good to lay to the Roots of *Vines* in *December* and *July*, to forward *Grapes* ripening, and to make *Vines* fruitful; and it is very advantageous to *Vines*, to water them in *Auguſt*, if the Seaſon proves dry.

Mr. *Bradley* adviſes, if notwithſtanding all the Care of pruning and weeding the Vineyard, the *Vines* are not inclined to produce large Bunches of Fruit, to lay Oxe-Blood or Carrion to their Roots about *November*; or (what is very common in the Vineyards in other Countries) to manure them with human Dung, which has lain ſome Time to meliorate, and hath loſt its Scent. It has appear'd very evidently, that this Way of inriching Ground has had the beſt Effect upon Fruit-Trees of any other Manure whatſoever; but chiefly on *Vines*, which will not bear any other.

To make Wine *of* Grapes.

If you make *Claret*, tread or ſqueeze the *Grapes* between your Hands, and let it ſtand with the Murc or Husks 'till the Tincture be to your liking: But as for *White-wine*, you may preſs that immediately.

When the *White-wine* is turned, ſome ſtop it up immediately; and are of Opinion, that it will not hurt the Cask, if you leave it half a Foot or more empty; and that ſomething more ſhould be left empty in a *Claret*-Cask. This they fill up with ſome proper Wine, at the End of ten Days, when the Fury of its Working is over. This Wine, with which it is filled up, muſt be ſuch as will not provoke it to work again: This is frequently to be repeated; for new Wine will ſpend and waſte ſomewhat, 'till it is perfect.

Mr. *Mortimer* ſays, this is the Way of making their Wines in *Languedoc*, and the Southern Parts of *France*; but about *Paris* they let it ſtand with the Murc and the Muſt for two Days and Nights for *White-wines*; and at leaſt a Week for *Claret*; but they take Care that it be well covered.

In ſome Parts of *France*, it is a Cuſtom to tun it up when it has wrought in the Keelers, and to fill it up (as before) with what is ſqueez'd from the Husk; and ſome with us think this very practicable.

Whilſt it continues working, it ſhould be kept as warm as can be, by cloſing up any Windows that ſtand to the *North*, if there be any ſuch in the Cellar, leſt it ſour the Liquor: Then the Veſſel is to be ſtop'd up for good and all. Some about this Time roll the Cask about the Cellar, to mix it with the Lees; and after it has been ſettled again, a few Days, they rack it off with great Improvement.

To fine the *Wine* down, they put into the Veſſel the Shavings of *green Beech*, having taken off all the Rind, and boil'd them for an Hour in Water, to extract their Rankneſs; and afterwards dry them in the Sun, or in an Oven. A Buſhel or leſs of theſe Chips will be enough for a Tun of Wine, and will put it into a gentle Working, and purify it in twenty four Hours Time; and alſo give it an agreeable Flavour.

Theſe Chips may be waſh'd, and will be better to uſe again the ſecond Time, and over and over again, 'till they are almoſt conſumed. Let the Shavings be planed off as long and as large as may be, and put them in at the Bung.

Some ſweeten their *Wines* with *Raiſins* of the *Sun*, trodden in the Vat with the *Grapes*, having been firſt plump'd by boiling; or by boiling one half of the Muſt or Liquor, ſcumming it, and turning it up hot with the other.

Mr. *Mortimer* recommends the following Method as the beſt he has met with, to make *Engliſh Wine*: That is, firſt to pick the *Grapes* from the Stalks, then to preſs them, and to let the Juice ſtand twenty four Hours in the Vat; afterwards to draw it off from the groſs Lees, and then to put it up in a Cask, and to add a Pint or Quart of ſtrong *red* or *white Port* to every Gallon of the Juice; and then to let it work together: Bung it up cloſe, and let it ſtand 'till *January*; then bottle it in dry Weather. By this Method, he ſays, he has made *Engliſh Wine* as good as any *French Wine*, without any Adulteration.

Mr. *Bradley* directs to gather the *Grapes*, when they are full ripe, in dry Weather, if it may be; then to put them into the Vat, and tread them, without breaking the Stones; or if the Quantity is not great, to preſs them with the Hands: That then the Liquor, thus preſs'd, ſhould (if the *Grapes* were dry when they were gathered) ſtand in the Vat, with the Husks and Stalks, to ferment for fifteen Days; but if the *Grapes* were not gathered dry, that they ſhould not ſtand above a Week or eight Days, before it be drawn off, leſt the *Wine* turn ſour, which it will be apt to do, if the *Grapes* were wet.

Some who are curious pick the damag'd *Grapes* off from the Stalk, before they put the *Grapes* in the Vat to be trodden, or ſqueeze them; which makes it ſo rich in its Flavour, that if it be compar'd with the *Wine* made the common Way from the ſame *Grapes*, it will not ſeem to be of the ſame Growth.

He adds, That according as the *Vines* have been managed, the *Wine* will be ſtronger or weaker: That thoſe *Vines* which have their Liberty to run up high Trees, and are never prun'd, make the ſmaller *Wines*; but thoſe that are kept ty'd to Stakes about four Foot high, and have their Branches kept prun'd, make ſtronger *Wines*: But thoſe *Grapes* that grow neareſt the Ground, make the ſtrongeſt: And theſe are ſometimes hung up to dry three or four Days after they are gather'd, before they are preſs'd, which, ſome ſay, exhales the watery Parts.

Mr. *Mortimer* ſays, That he has drank *Wine* made of the *Grapes* of Sir *William Baſſet*'s Vineyard, near the *Bath*, that he thinks was as good as any of the *Wines* that he had drank either in *Paris* or *Champagne*.

Of Cultivating Wall-Vines.

As for the Soil, Manner of Planting, *&c.* thoſe Things which have been ſaid before may be ſufficient. The chief Difference of the Culture between *Vines* in *Vineyards*, and againſt *Walls*, is in the Pruning, *&c.* For in our cold Climate, where we are oblig'd to plant them againſt a Wall or other Shelter, Mr. *Mortimer* ſays, they ſhould be prun'd only of unthrifty Branches, ſuch as are flat, and grow dry in *Winter*; ſo that when they are cut, there is no Sap perceiv'd in them; for the Plenty of *Grapes* which they cannot bear, exhauſts ſo much of the Nouriſhment of the *Vine*, that it will rather decreaſe every Year, than grow too luxuriant.

And beſides, the more Wood a *Vine* has, the more Fruit is to be expected, becauſe they are only the Shoots of the preſent Year which bear Fruit; therefore as much of the old Wood is to be taken away as may be, which has only a few good Branches, and let them be bended as low down as well can be, and young Roots will grow from them.

But if they run too much to Wood, the worſt of the Branches ſhould be cut off, rather than ſhortened; becauſe it cauſes them to be rough, and not to ſhoot out young Branches.

If an old *Vine* does not bear well, lay down a Layer of ſome of the ſtrongeſt Branches of the preceding Year, which grow low, and nurſe up a young *Vine* from that Layer; and as the new *Vine* ſpreads upon the Wall, cut the old one away.

As for Pruning *Vines*, eſpecially thoſe that grow againſt Walls, Mr. *Bradley* ſays, the right Knowledge of the Seaſons and Manner of Pruning chiefly contributes to give a plentiful Store of good ripe Fruit; and to that End gives the following Directions:

That whereas it is the common Practice of Gardeners to prune their *Vines* in *December*, they accounting that Seaſon to be much better than *January* and *February*; becauſe the *Vines* prun'd in thoſe Months are apt to bleed away too much of their Strength; and whereas it is common with them to leave four Buds or Eyes upon every pruned Branch, whether the Shoots are ſtrong or weak; he owns he has ſeen *Vines* which have produc'd good Fruit, that have been ordered after that Manner. But he is certain, that any Perſon who ſhould ſee the *Vines* of Mr. *Fairchild*, at *Hoxton*, would manage them after another Manner.

His Method of Pruning his *Vines* is, as ſoon as the Fruit has been gathered; and according to the Strength or Thickneſs of the Branch, he allows a due Length; as about a Yard long to a very ſtrong one, and prunes thoſe that have leſs Vigour, ſhorter in Proportion.

He adds, that he has obſerv'd, that by this Method of Pruning, he never fails of large Quantities of *Grapes*, which ripen very well, and much earlier than any of the ſame Kind that are pruned after another Manner.

After this Pruning, the *Vines* muſt be look'd over again in *May*, and disburthened of all the ſmall, weak Shoots, but rather by being broken off than cut. Thoſe Shoots, that have Fruit then appearing upon them, are to be top'd; but ſo that a ſufficient Number of Buds be left above the Fruit, upon each Branch, in Proportion to the Strength or Thickneſs of it, taking Care never to prune nearer than three or four Buds to the Fruit: Then the *Vines* are to be examined a third Time in *June*; and thoſe barren Branches, which by that Time will have ſhot to a great Length, muſt (if they are not wanted to furniſh ſome Vacancy in the Wall) be quite taken away, or be pruned, according to their Vigour, longer or ſhorter.

Thoſe *Grapes* of the forward Kinds will, by the Beginning of *Auguſt*, be pretty well grown, and then they muſt have a fourth Pruning, to let the Sun in to ripen them; but they muſt not be left too naked of Leaves, leſt the cold Dews, which begin to fall at the latter End of the Month, injure the Fruit.

In the *Summer*-pruning of *Vines*, you ought to have a due Regard to the Number of Branches that the Wall will require to be laid in, in the *Winter*, to ſupply the Place of the old Wood, which is then to be taken away: For you muſt take this for a certain Rule, that a *Vine* does not bear Fruit on any Branches, but ſuch as are the Produce of the laſt Year; and if they be manag'd with Diſcretion, you will ſeldom or never fail to have good Store of Fruit.

Mr. *Collins* ſays, That Houſe-*Vines* ought to be laid up at equal Diſtances, the Shoots at about a Foot one from another: That it will be ſufficient to leave five or ſix Joints of the laſt Year's Wood growing. The Shoots ought to run ſtrait every where, and to lie cloſe to the Wall: And every Thing that puts out on the Sides ſhould be cut off ſo cloſe to the Arm of the *Vine*, that only one Eye or Bud ſhould be left.

He directs, that Pruning be perform'd by beginning the Slope on the Side oppoſite to the Eye, and but a very little higher than the Bud; and for this Reaſon, that it will prevent it from being deſtroy'd by the Wet.

This Wood, he ſays, will laſt good for Bearing large Fruit for about eight Years; at which Time you ſhould cut clear away every other Branch, and if poſſible from the Bottom, as near towards the Root as any young Wood ſhall ariſe: In the *Winter*-pruning, two Shoots ſhould be cut off there, leaving about three Joints to form the *Vine* anew: By following this Method, there will never be above half the *Vine* loſt; and in three Years Time the Tree will be large: And at that Time you ſhould prune off all the old Wood to the ſetting on of the young.

And whereas it is ſaid, that *Vines* ſhould have three Prunings in a Year, he approves of no more than two, *viz.* the *Winter*-pruning, and another when the Fruit is ſetting: And that tho' ſome uſe another later Pruning, there is but little Occaſion for it; becauſe they are apt to take thoſe Shoots off within a Joint or two of the Arm, which do not bear; moſt of thoſe Shoots dying, whereby frequently the Knots are loſt. And beſides, if *Vines* are not intolerably thick, the *Grapes* will ripen as well in a hot Seaſon, and ſooner in a cold one.

But he ſays, *Vines* planted againſt Garden-Walls muſt be ordered after a different Manner; and if a Wall can be ſpared for that Purpoſe, they ſhould be ſo layered, that they may riſe at about fourteen Inches Diſtance, at which they ought to fill the Wall from one End to the other in a direct Line.

Theſe, like Houſe-*Vines*, ſhould not in one Year have more than three or four of their Joints prun'd, except the *Vines* are naturally ſhort-jointed ones, and then eight or nine Joints may be left on.

Theſe ought to be cut down near the Ground once in eight or nine Years; but the Year before this is intended to be done, Care ought to be taken to leave and prepare intermediate Shoots, that will be ſtrong enough to bear ſome Fruit, the ſame Seaſon in which the old Wood is totally cut out.

But theſe *Vines*, he ſays, he has variouſly made Uſe of: For on a *South*-Wall, where *Nectarines* and *Peaches* have been planted at equal Diſtances, each intermediate Space has been fill'd up with a *Vine*, running and meeting in the Middle, over each Tree.

Theſe *Vines* fill the Wall to the Top, at what Height ſoever; and as the Roots are no Prejudice to the Stone-Fruit, tho' they may perhaps interfere, ſo neither does the dropping of the Leaves do any Injury to the Fruit; but on the contrary contribute very much in wet *Summers* to the keeping of it ſound.

Mr. *Laurence* ſays, the *Vine* of all other Trees needs pruning moſt; and tho' it is the eaſieſt to be perform'd, (as far as his Obſervation has gone) yet it is the leaſt underſtood.

The *Vine*, in the Condition it is commonly left in *November*, is confus'd and ruinous enough, if it has any Thing of Youth and Vigour; altho' it has been carefully manag'd in the *Summer* preceding; becauſe it puts out the moſt and longeſt Shoots of any other Tree.

He refers to his firſt and third *General Directions for Pruning*, which are, that the more the Branches of any Tree are carried horizontally, the more apt and the better diſpos'd that Tree will be to bear Fruit; and conſequently the more upright and perpendicular the Branches are led, the more diſpos'd that Tree is to increaſe in Wood, and leſs in Fruit.

The third Rule, is to take Care that the Tree be not over full or crouded with Wood, nay not with bearing Branches; becauſe Nature not being able to ſupply a ſufficient Quantity of ſuitable Juices for them, of Conſequence none of them will be ſupply'd, but either the Bloſſoms will drop, or the Fruit will dwindle to nothing.

Thoſe Directions having been obſerved, he further propoſes this Obſervation, that the leſſer and weaker Shoots of a Vine never bear any Fruit; and therefore they are intirely to be cut off, or elſe they will only tend to weaken the Tree in drawing off the Sap, which ſhould go to nouriſh the Fruit Branches, which are thoſe of the moſt vigorous Sort; and therefore ought to be preſerv'd with Care, leaving only four or five Buds, or Eyes of the laſt Years Shoots; for if more be left they will exhauſt the Sap in vain; for they are only the firſt and ſecond Eyes that bear Fruit.

Tho' indeed, when a Vine has put forth a Shoot that is more vigorous than ordinary, if you can carry it horizontically into a void Place, it will ſometimes bear in five or ſix of the extreme Eyes; and in ſuch a caſe it may be left longer; but this is not to be practiſed in ordinary.

A Vine ought to be thinner of Wood than any other Tree, and therefore it ought to be carefully examined, what old Wood may be intirely ſpared, and how the Spaces may be conveniently fill'd up with neighbouring vigorous Shoots; taking Care every Year to cut out the old Wood, and to preſerve the new.

The Time of this firſt pruning may be before *February*, but he thinks it not adviſeable that it be afterwards, leſt the Vine ſhould bleed in the Spring, which it will be very apt to do at thoſe Places where any thick Branches have been cut off.

The ſecond Pruning, he directs to be performed about the middle of *May*, when the Bunches of Grapes are perfectly formed, and the Branch has ſhot out to the length of two or three Foot.

This is to be done by punching off the Branch about ſix Inches above the Fruit; then nail or tye it cloſe to the Wall, that if it can be done the Fruit may touch it.

As for the fruitleſs Branches you may let them alone till the third Pruning at *Midſummer*, at which Time the Vine is to be re-examined and diſburthened of the Multitude of luxuriant Branches it is apt to put forth, ſhortening them to a convenient

Length, that the Rays of the Sun may have Acceſs to the Fruit to ripen it; but ſo as not to expoſe it too much for fear of cold Nights and Rains.

And beſides this, he ſays, that a vigorous Vine will require a fourth pruning about *Auguſt*, when it has ſhot out long Shoots from the Extremities of the laſt Pruning; for they muſt be ſhortened, and ſome of the Leaves muſt be pull'd off with diſcretion from before the Fruit.

He adds, that it is a Rule, that nothing ought to be ſuffered to grow upon a *Vine*, even in Summer, but what is abſolutely neceſſary for *Wood*, *Fruit* and *Shelter*, and that all beſides theſe tend to Poverty and Barrenneſs: And if all the Fruit Branches were intirely taken away, there could be no want of bearing Wood; the contrary Practice of ſuffering ſo much Confuſion, and ſo many fruitleſs Branches in a *Vine*, is what has diſcourag'd many from Hopes of Succeſs.

He alſo adviſes, at the latter end of *May*, to nail the moſt forward projecting Branches, where Fruit is, cloſe to the Wall, which, tho' it is what is not ordinarily directed to be done, and ſo commonly neglected; it is often the Occaſion that many Grapes never come to maturity, but are ſtarved with cold Winds and Dews.

Mr. *Bradley* acquaints us, he gave the following Advice for the Management of old *Vines*, which had been neglected for ſome Years. Firſt he obſerves,

That all *Vines* bring their Grapes upon Shoots of the ſame Year, and thoſe Shoots, as well as the Grapes they produce, are much fairer and better furniſhed, as they ſprout from large Shoots of the former; whereas thoſe which grow from the old *black* Wood are faint and weak, and afford only ſmall Bunches of Grapes which ripen late; therefore it has been the uſual Practice of the beſt Artiſts to keep their *Vines* low, and to lay the Branches, for bearing, as near to the Ground as poſſibly may be, which both cauſes the Fruit to be larger and to ripen much ſooner; and eſpecially if Part of them be buried in the Earth, ſo that they may take Root, for then they will have double Nouriſhment; *viz.* from the Root of the Mother Plant and from the Fibres which ſhoot out of the Layers. And alſo theſe young Shoots may be helped in their Growth, by laying little Balls of ſoft Soap for the Roots to ſtrike into.

And in the Caſe before mentioned, the *Vines* may be brought into a Method two Ways.

1. They muſt be diſengaged from the Walls, and diſmembred of all the ſmaller Shoots, ſuch only of the new ones being left as are about the Thickneſs of ones little Finger, or the largeſt that can be found of the ſame Year, which, if they are ſtrong Shoots may be pruned to three Foot long or more, or may be left in Proportion as they are leſs vigorous.

When you have thus ordered the *Vine*, then you may dig up the Ground round about it, and bend the whole *Vine* downwards as near to the Earth as can be, and faſten it ſo with ſtrong Hooks, or Stakes, that the Spring of the Body of the *Vine* may be ſo curb'd, that it ſhall not be able at any Time to ſtir the young Layers, and draw them out of the Earth.

For every Shoot, after it has been pruned according to the former Directions, is to be laid into the Ground two or three Joints at leaſt, and the Parts of them which riſe out of the Ground for bearing, are to be ty'd up to Stakes of a Foot long; for tho' they may not appear to be above a Foot long, when you lay them down in *November*, yet there muſt be Proviſion made for tying up the young Sprouts, which will ſprout from them the next Summer; and by this means there will in one Years Time be a little Vineyard, bearing Fruit, raiſed out of one ſingle Plant, if it be large and well furniſhed with Branches.

When the Fruit is ripe, the *Layers* may be cut from the old *Vine*, and you may erect the Stem or Body to the Wall from whence it was taken, and faſten it up againſt it.

But in the mean Time, when this *Vine* is firſt laid down in the Earth, you may contrive to place a Layer or two ſo near the Wall, that they may remain there.

And beſides he thinks it would be adviſeable to provide Pots for the other *Layers*, and to draw them through, rather than to lay them in the naked Earth, becauſe if ſo, when they had ripened the firſt fruit, they might be removed to any Place at Pleaſure, without either hazard or loſs of Time.

The ſecond Way he preſcribes of improving old unruly *Vines*, is to prune them as has been before directed, altho' they do grow very high, and to draw thoſe Shoots that are proper for bearing, and are at ſome Diſtance from the Ground, thro' Garden Pots, faſtened to the Wall in Iron Rings, and filled with Earth, and this will both haſten the ripening of the Fruit, and enlarge the Bunches, as well as if they grew near the Ground, and nouriſh the whole Tree; for every Part of the Tree would participate of the Nouriſhment which is drawn from the Earth which is in the Pots by the Roots of theſe Branches, which grow from them: But it will be neceſſary, if the Seaſon be dry, every now and then to aſſiſt the rooting of the Branches in the Pots by watering them.

A *Vine* ordered in this Manner will afford us as many Plants as there are Pots, when they are ſeparated from the old Stock, or if you have not a Mind to ſeparate them from their Mother Root, you may very well let them remain in the Pots for three Years; but then in the mean Time no other Shoots of the old Trees ſhould be encouraged, except it be thoſe which ſprout from thoſe Parts are rooted in the Pots; unleſs the Deſign be to ſupply the Place of the firſt that are to be taken away.

He alſo recommends the grafting of one *Vine* upon another, which, he is of Opinion, may be done two ways; but both of them muſt be performed upon the tender *green* Shoots, about the middle time of their Growth, and the Cyons alſo muſt be of the ſame Growth and Tenderneſs.

The firſt is to be performed in the common Method of grafting; either by cutting the Cyon like a Wedge for the Clift, or ſloping one ſide of the Stock-ſhoot out, and fitting the Cyon to it with a Tongue. Theſe ſhould be bound together as light as can be, without bruiſing either the Stock or Cyon; and then ſhould be with a large painting Pencil, thinly covered over with a Mixture of Tallow, Bees-Wax and Turpentine, equal Parts, melted together, but not over hot.

A ſecond Way may be, by inarching the tender Shoots one into another, and then binding and plaiſtering, or anointing them as was directed before. This he approves of as the ſureſt Way of the two, and if we have any *Vines* rooted in Pots may be eaſily accompliſh'd.

And if this Way ſucceeds, beſides the Pleaſure of ſeeing ſeveral Sorts of Grapes upon one and the ſame *Vine*, any Sort of *Vine*, which we like beſt, may be propagated, with more Eaſe; and he is of Opinion, we may very expeditiouſly bring them to bearing. The beſt Time of this graffing, he thinks, is *June*.

He alſo preſents us with an Obſervation or two on *Vines*, which were made to ſhoot near two Months ſooner than Nature her ſelf would have put them into Motion.

He ſays, he took Notice of a *Vine* which was planted againſt Baker's Oven, which ſprouted in the Beginning of *March*, and continued from that Time ſhooting vigorouſly all the Summer; and altho' it grew in a ſtiff wet Ground, and had little Advantage of the Heat of the Sun, yet the Grapes ripened much ſooner than any others of the ſame Kind.

And alſo that another *Vine* that was planted againſt an Oven in a ſandy ſoil and warm Expoſure, at the Pot-houſe at *Fulham*, which was continually kept hot for the baking of earthen Pots, began to bud about *January*, and (as he was informed) would have ripe Grapes in *June*, being aſſiſted by a Glaſs Frame, with which it uſed to be covered in ſevere Weather.

He adds, if a *Vine* planted againſt the Back of a Chimney, where a Wood or Turf Fire is conſtantly kept, ſo as to warm the Bricks, it will cauſe it to ſprout early, and bring its Fruit ſooner to Perfection than other *Vines*, which have not that Help; as he has found by experience.

If then a *Vine*, by this Means, is brought to ſhoot or bloſſom earlier than uſual, he adviſes, That we be not deceived by the too common Opinion, that the expoſing the Bloſſom or young Fruit immediately to the Sun will haſten its Maturity, or make it large, and to do as ſome do, to pull away the Leaves from about it; for doing ſo does rather retard its ripening than forward it; for it contracts the outward Skin of the Fruit ſo much, that it cannot receive the Nouriſhment it ought, and otherwiſe would do.

All that know any Thing of the Nature of the Growth of Vegetables muſt allow that Shade does always contribute to the large Growth of Plants and Fruits; and that the Heat of the Sun is chiefly requiſite for the ripening of them; therefore he adviſes to let young growing Fruit always remain ſheltered with their Leaves, till it be full grown, and then you may begin to lay it open to the Sun, in order to its ripening.

Grapes ſhould be gathered in a dry day, and when they are very plump and tranſparent, that is, when the Seeds or Stones are black and clear, not viſcous or clammy, when the Stalks begin to ſhrivel at the Part next to the Branch, which is a ſign they have done feeding; but if Rain come, and Froſt immediately ſucceeds, then you muſt gather them as ſoon as you can.

It is the beſt Way not to pull Grapes from the *Vine*, but to cut them off, and if they are for Wine, to put them into Baskets, and empty them out laying them Heaps on a Floor, to ſweat for four or five Days, or a Week, and that will make them the riper.

Mr. *Lawrence* ſays he has tryed ſome Experiments for the accelerating the ripening of Grapes, as putting the Fruit in *June* into an empty Flask, and running the Branches upon the Tiles of the Houſe, or on a ſlope Wall, but neither did anſwer his Expectation: For tho' the Grapes in the Flask ripened ſooner, yet they were apt to be mouldy for want of free Air, and had an inſipid Taſte; and the Slopes, tho' they admitted more of the Sun's Rays, yet the Fruit was more expoſed to the Rains, Dews, and cold Nights, which ſeem'd to overpower the Heat of the Sun.

Mr. *Bradley* ſays, the *French* Way of managing Wall *Vines* is as follows;

The *Vines* muſt firſt of all be brought to ſhoot with Vigour, that there may be two or three Shoots of Strength to lay to the Wall for Service; and this depends upon the pruning of the ſmall Shoots. As for Example, ſuppoſe a young *Vine* planted in the Spring 1723, which at *Michaelmaſs* that Year has ſhot two or three ſmall Twigs, about as thick as Wheat Straws; when thoſe Twigs have done growing, they muſt be cut down, ſo as to leave only one Bud upon each Shoot; ſo that the next *Spring*, in the Year 1724, the Sap which was deſign'd by Nature to furniſh all the Buds in the Twigs which were cut off, will be employ'd only to nouriſh the few ſingle Buds that were left in Pruning, and will fling the remaining Buds into vigorous Shoots, which, in the *Vine*, are thoſe that bring bearing Branches.

The Shoots which proceed from their Buds in the *Spring*, 1723, will, at *Michaelmaſs*, the ſame Year, be at their full Growth; and ſhould not be broken or touch'd with a Knife while they are in their growing State; for that will ſet them to branch, which ſhould be avoided.

When the *Vine* is come to the aforeſaid State, at *Michaelmaſs* 1724, the next Thing to be conſidered, is, what Length the Shoots of that Year ſhould be pruned to, when they are laid down to the Wall; and that Pruning muſt be ordered according to the Strength of the Shoots. If the Shoots are about three Fourths of an Inch Diameter, they may be left about four Foot and a half long; if they be about half an Inch Diameter, they may be left three Foot long; and as they are leſs, they ſhould be ſhortened in Proportion. But any of theſe, if their Buds or Joints be cloſe, muſt be left ſhorter than if their Joints are wide aſunder.

Mr. *Mortimer* ſays, the beſt Way to keep *Grapes*, is to hang them up in the Air, faſtened to a Packthread; but if you would preſerve them 'till towards the *Spring* of the Year, you ſhould gather them before they are full ripe, and conſtantly pick out thoſe that begin to rot. And ſome ſay, the beſt Way to keep *Grapes*, is to hang them up in a Barrel, which may be headed up ſo cloſe, that no Air may come at them. And others lay them in a Cask, in Oat-Chaff.

Mr. *Bradley* acquaints us, that a Friend of his had a Parcel of *Vine-Cuttings*, which he had kept without Earth for near two Months; and accidentally remembring them in *April*, put them all together into a Hot-bed, where in little more than a Week's Time, they made Roots, and began to bud; and in a Fortnight's Time they made vigorous Shoots, which promiſed Branches of great Length, altho' they were taken out of the Earth ſeveral Times, to ſee what Roots they had: And that as there did yet remain a Difficulty as to the Tranſplanting them into proper Places in due Time; for that they being in Leaf, the common Ground would not be ſufficient to maintain them without Artifice: He therefore adviſed him to tranſplant them into Pots, and to continue them in a Hot-bed, hardening them by Degrees, in the *Summer*; taking Care the tender Roots, which were full and of a *whitiſh* Colour, ſhould not be ſuffered to be dry before they were ſet into the Pots, nor be the leaſt bruiſed; and he was of Opinion, that they would make Plants that *Summer* fit to bear Fruit the next. The Pots, he ſays, will ſecure their Tranſplantation at any Seaſon without any Check, becauſe they may be ſet in the common Ground without the Earth about their Roots.

The Hot-bed made Uſe of was covered with Virgin Earth, near ſeven Inches deep, and work'd with Gentleneſs, and produc'd a natural Heat.

He adds, that in the Year 1720, he made an Experiment, as to the facilitating the Raiſing of *Vines* from *Cuttings*, by Means of common *ſoft Soap*; and he recommends it particularly to the Curious, that they may begin early enough. The young Shoots which appear in *May*, however tender they are, may be taken from the *Vine*; and after having taken off the lower Leaves, you may ſoap the whole Part well, which is to be ſet in the Earth, and then plant them in a fine Earth, made into Mud by Water. The Water muſt be of the common ſort; for if you uſe the Water of Dunghils, it will deſtroy them. Theſe, thus planted in common Earth, will, in leſs than ſix Weeks, have taken Root. And he ſuppoſes, that if they had the Aſſiſtance of a Hot-Bed, they would do Wonders; for *Soap* is of great Uſe to *Vines*.

Mr. *Collins* ſays, that being at *London*, and finding ſome of the largeſt, nobleſt *Grapes*, which came from *Portugal*, he ſav'd more than a Dozen of the *Seeds*; which were ſown in a Pot, in *February*, and came up very well, and grew up in one Seaſon to the Height of fifteen or ſixteen Inches, but not ſtrong enough to ſtand the *Winter*; and therefore *they* were houſed. And that he ſhould be oblig'd to prune them off at two Joints above the Ground; but ſome at one, which he did ſuppoſe, would by the ſecond Year be ſtrong enough to plant out with Security.

19. VIOLETS.

Various Kinds.] *VIOLETS*, Mr. *Bradley* ſays, are of ſeveral Sorts, and are either *ſingle* or *double*; the moſt common of them cultivated in Gardens, are the *ſingle blue*, and *white* Kinds; the more rare are the *double blue*, and the *double white*; and another Sort that hath *variegated* Leaves.

Soil, and Way of Propagation.] They delight in a binding Soil, and ſhady Places. All theſe, Mr. *Mortimer* ſays, as well the double as ſingle Sort, and of what Colour ſoever they be, tho' they do produce Seed in little *reddiſh* Shells or Husks, yet they are multiply'd only by *Slips*, each Plant or Stock of them growing inſenſibly into a Tuft that may be divided into ſeveral little ones; which being replanted, do in Time grow big enough to be divided into others.

The proper Seaſon for dividing and replanting them, Mr. *Bradley* ſays, is either in *February* or *September*; but he rather approves of the later. They all blow in *March*; and beſides their Beauty, perfume the Air with a moſt grateful Odour. The Sorts with *double* Flowers, if their Roots be ſtrong, do alſo bloſſom in *Autumn*.

Mr. *Mortimer* ſays, the *double Violets* more particularly ſerve to make pretty Borders in Kitchin-Gardens: And Mr. *Bradley* adviſes, to plant them among *Primroſes* and *Cowſlips*, under Hedges, and the moſt rural Places of the Garden, or near the Edges of Garden-Beds.

20. VIOLET MORIAN, *or* CANTERBURY BELLS.

MR. *Mortimer* ſays, this Plant is rais'd of *Seeds*, which ſhould be ſown in *April*; it comes up the firſt Year, and ſhould be afterwards remov'd where the Plants may ſtand to bear Flowers. The whole Plant dies as ſoon as the Seeds are ripe.

21. *The Double* VIRGINS-BOWER.

THIS Plant is of a twining Nature, or is a climbing Tree; and muſt be ſupported with Stakes or Props: It is fit to cover Arbours or Places of Repoſe. It bears Flowers of a *Violet* Colour, which grow in great Numbers, almoſt covering the Plant in *July* and *Auguſt*, and 'till the Cold prevent them. It loves a light Soil; and may be rais'd from *Layers* in *September*, and ſome ſay alſo from *Cuttings*.

Mr. *Mortimer* ſays, you may cut off moſt of the ſmall Branches in *Winter*: It ſhoots early, and ſpreads very much in *Summer*. It may either be planted againſt a Wall, or ſet among other flowering Shrubs in a Wilderneſs.

There are alſo *ſingle* ones, both *purple* and *red*; but the *double* ones are moſt eſteemed.

22. VIRGINIAN - CLIMBER, *or* MARACÆ.

Deſcription.]

MR. *Mortimer* thus deſcribes this Plant: It comes out of the Ground in *May*, with long, round, winding Stalks, more or leſs, and in Height according to the Age. From each Joint proceeds a Leaf from the Middle to the Top, a Claſper like a Wire, and a Flower; the Leaves are of a *whitiſh* Colour, with a Ring of a perfect *Peach*-Colour toward the Bottom, and a *white* Circle above and beneath it; but the ſtrongeſt Part is the Umbrane, which riſes in the Middle, and divides itſelf into four or five ſpotted Horns; out of the Midſt of this, there riſes another roundiſh Head, which carries three Nails or Bars, bigger above and ſmaller at the lower End. It bears beautiful Flowers in *Auguſt*; and its Fruit is like a *Pomegranate*. The Stalk dies to the Ground every *Winter*, in which it ſhould be covered and defended from hard Froſts; and ſprings again from the Roots in *May*.

It ought to be planted in a large Pot, both to prevent the Roots from running, and for the Conveniency of ſetting it in the Sun in *Summer*, and houſing it in the *Winter*: For if it be not ſet in the hotteſt Expoſure, it will not bear at all. The Pots may alſo be ſet in Hot-beds in the *Spring*, to bring them forwards.

23. UMBELLIFEROUS.

UMBELLIFEROUS Plants, are ſuch as have their Tops branched and ſpread out like an *Umbrella*, on each little Sub-diviſion of which there is growing a ſmall Flower; as *Fennel*, *Dill*, &c. and the Tops of theſe are called *Umbels*, by ſome Writers.

24. UMBRIFEROUS.

UMBRIFEROUS, is making or caſting a Shade.

25. UMBROSE.

UMBROSE is ſhady, caſting a Shade.

26. UMBROSITY.

UMBROSITY, a thick Shade of Trees.

27. UNIFORM.

UNIFORM Plants or *Flowers*, are ſuch as are all round of the ſame Figure, having the fore and back Parts, as alſo their right and left Parts exactly alike.

28. URINE.

MR. *Mortimer* ſays, he prefers *Urine* for Trees far before Dung, becauſe it penetrates better to the Roots, and is *much to* be preferr'd for curing *ſeveral* Infirmities of Trees: In which Opinion, he is confirm'd by a Letter he received from a Friend concerning the Preſerving of Fruit-Trees in *Kent*; wherein he ſays, it was formerly (as all ancient Graziers know) a Cuſtom to keep up and fatten their Oxen in Stalls, in which earthen Veſſels were plac'd under the Planks to receive the *Urine* that came from them; with which *Urine*, they (in the Month of *March*) two or three Times waſh'd the moſſy, cankered, worm-eaten and unſound Trees, and poured ſome of it to the Roots; and if Plenty of it were now to be had, he doubts not but that *Pippin-Trees* might be rais'd, made to thrive and flouriſh as well as heretofore.

Mr. *Mortimer* ſays, That he is in Fear that the *Kentiſh-Pippin* will be loſt, unleſs ſome Perſons are encourag'd by theſe Obſervations to ſet about the Cultivating of them. For tho' he finds old Trees of that Sort in *Kent*, *Eſſex* and *Hertfordſhire*, yet he does not find that any young ones proſper: And that in *Hertfordſhire* a Friend of his had try'd a great many Experiments about raiſing of them; but tho' he had in the ſame Orchard old ones that grew and bore very well, yet he could never get the young ones to thrive. That he alſo try'd ſeveral Experiments himſelf, and tho' he has had young Trees that have thriven ſo well as to make many Shoots of a Yard long in a Year, yet theſe young Shoots were always blaſted the next Year, or cankered; which makes him think the Ancients had ſome particular Way of raiſing them, that we have loſt the Knowledge of; and by Circumſtances, it ſeems very likely they did make Uſe of *Urine*; for that he has found by Experience, that there is nothing more advantageous than *Urine*, for the Improvement of all Sorts of Vegetables.

And therefore he is ſorry to find, that ſo uſeful a Material as *Urine* ſhould be ſo much neglected, and generally let run to Waſte, of which ſo great Advantage is made in *Flanders*, and other Parts beyond Sea.

Sir *Hugh Plat* ſays, That if you mix Cow-Dung and *Urine* together, and waſh Trees with it with a Bruſh once in two or three Months, it will keep *Conies*, *Hares*, *&c.* from barking them, and will deſtroy the Canker.

The ſame Author, and Dr. *Plot*, and others ſay, *Urine* is a very beneficial Manure, and may as well be apply'd to the Body and Branches of a Tree, to cure Cankers, kill Moſs and Worms, as at the Root (that is, in moderate Quantities) to warm, invigorate and quicken the Circulation of the Sap, eſpecially in a cold, barren Soil.

Tho' *Glauber* accounts *Urine* to be of a deſtructive, mortifying Nature to Vegetables, becauſe of the *Sal Armoniack* Quality that is in it; yet Mr. *Mortimer* ſays, that it is only an indiſcreet Uſe that is made of it, by uſing too great a Quantity that makes it ſo; and that even Dung it ſelf, if it be laid too thick, will have the ſame Effect for a Time.

And that there is nothing that will improve Land, or increaſe the Strength of Manure, or help the Fermentation of Dung, more than *Urine* will do: And for that Reaſon, they are as careful to preſerve the *Urine* of their Beaſts, in *Holland*, as they are to ſave their Dung. And Mr. *Hartlib* commends it as a very great Improver of Land. See the Paragraph *Sheeps-Dung*, in the Article *Dung*.

W A

1. WALKS.

MR. *Switzer* directs, That the Bottom of *Walks* be fill'd with Lime-Rubbiſh, or coarſe Gravel, Flint-Stones, or other rocky Stuff, in Order to keep the Weeds from growing through; and that this ought to be eight or ten Inches, over which may be laid ſix or eight Inches of fine Gravel, not ſkreen'd, becauſe that ſpoils it, but beſt on a round Heap, ſo that the great, rough Stones may run down on each Side, which being every now and then rak'd off, the Gravel will be fine enough for the Purpoſe. The Fineneſs of the Gravel in ſome *Walks*, he ſays, is an unpardonable Folly.

When the Gravel is laid ſix or eight Inches thick, then the *Walk* muſt be rak'd true and level from all great Dips as well as little Holes: Then you will be oblig'd to rake almoſt all the Stones of the *Walk* under your Feet; but tho' many Gardeners do bury them all (even to a Fault) he adviſes, rather to ſprinkle them back again gently over the laſt Length that is raked, by doing which, the *Walk* will lie much the firmer, and the coarſeſt Stones contribute much to its doing ſo.

He finds Fault, that *Walks* are frequently made too round, and ſometimes to that Degree that they cannot be walked on with that Eaſe and Pleaſure, that otherwiſe they might be; and beſides that, the Roundneſs takes off a great deal from the ſeeming Breadth of the *Walk*. And adds, that an Inch Crown in five Foot is what is commonly allow'd for a *Gravel-Walk*; ſo that ſuppoſing a *Walk* to be twenty Foot wide, it is four Inches higher on the Middle than on each Side; and if it be twenty five Foot wide, five Inches; if thirty Foot, ſix; and ſo on.

After the *Walk* has been carefully laid, or indeed after every Length or Part of it, which commonly is about fifteen each; then it muſt be carefully roll'd long-ways and croſs-ways, the Perſon that rolls it, wearing flat heel'd Shoes, that he does not make Holes in the *Walks*; for when they are once made in a w *Walk*, it is not eaſy to roll m out again.

Theſe *Walks* muſt be ſure to have three or four Water-Rollings, to lay the Walk firm. A Water-Rolling is performed, when it rains ſo very faſt, that the *Walks* ſwim with Water; and this will make the Gravel bind; and when once dry Weather comes, they bind as hard as a *Terraſs*.

He recommends Iron-mould Gravel as the beſt Gravel for binding, or Gravel with a little binding Lime amongſt it; and tho' the latter is apt to ſtick to the Heels of Shoes in hot Weather, yet nothing binds better in dry Weather.

Sometimes Loam is mix'd with it when the Gravel is over ſandy or ſharp; this being caſt in Heaps, and well mix'd together, will bind like a Rock; whereas looſe Gravel is as uncomfortable and uneaſie, as any other Fault in a *Walk*. In this, he ſays, we in *England* exceed the *Dutch*, *Flemmings* and *French*.

The Time he recommends for Laying *Walks*, is in the Month of *March*.

Mr. *Mortimer* ſays, the beſt *Walks* in *Winter*, or wet Seaſons, are ſuch as are pav'd with Free-Stone; but thoſe Stones are apt to break and moulder with the Froſts; but he eſteems Gravel-Walks which are made of good binding Gravel that will not poach, as much better.

If the Gravel is found to poach, he adviſes, to mix a good Quantity of Sand with it, which will not only make it ſolid and firm, but alſo more beautiful.

That Sand, which is the looſeſt and largeſt grain'd, is the beſt for that Purpoſe.

Some grind or pound Sea-Shells, and lay a thin Coat of it on the Gravel; this, by being conſtantly roll'd, incorporates with the Gravel, and hinders it from ſticking to the Shoes.

Others beat Bricks ſmall to Duſt, and ſtrew it on the *Walks*; this dries up the Moiſture, and gives the *Walks* a fine Colour.

Some beat Smith's Cinders to Duſt, and do the ſame; theſe are of a very drying Quality.

In Order to prevent Weeds in *Walks*, he adviſes, when they are firſt made, to dig the Earth away deep, where the Gravel is to be laid; and if the Soil be a clayey one, or ſuch a one as is apt to produce Weeds, it ſhould be dug the deeper, and the Gravel muſt be laid the thicker.

Some pave the *Walks* all over with Flint-Stones or Pebbles, and lay the Gravel on this Pavement, the coarſeſt undermoſt, and the fineſt uppermoſt.

The *Walks* muſt be kept well roll'd, eſpecially as ſoon after Rain as the Top will be ſo dry as not to ſtick to the Roller; and this will make them bind.

If the *Walks* grow moſſey, or diſcoloured, they may be ſtirred with a Spade, as deep as the fineſt Gravel lies.

He recommends the Watering *Walks* with the Brine of ſalted Meat, or the Liquor that Salters call *Bittern*, which is better to kill Worms and Ants, and alſo Weeds.

In Order to cure *Walks* as to Moiſture, eſpecially after Froſt, which looſens the Gravel, and then long ſoaking *Rains* make it ſtick and hang to the Feet; he adviſes, to lay the *Walks* round, and to make good Drains where the Water ſettles. See *Sand*, *Gravel*, *&c.*

In Order to deſtroy Worms, in either Gravel or Graſs-Walks, Mr. *Laurence* adviſes, to fill a Ciſtern or large Trough with Water, in *Autumn*, and put in a large Quantity of *Walnut-Leaves*, and to let them ſtand to ſteep for a Fortnight or three Weeks, and by that Time the Water will have taken ſuch a bitter Tincture, that if a ſmall Quantity be pour'd gently on ſuch Places as are moſt annoy'd with Worms, by that Time you can ſuppoſe the Water has reach'd them, the Worms will hurry out of their Holes, and crawl in Numbers under your Feet; ſo that you may gather them up, and throw them away.

This, he ſays, will certainly deſtroy them; may be done at any Time of the Day, and often repeated; and they may be taken in a Summer's Evening by a Lanthorn and Candle.

Graſs-walks are very pleaſant in Summer-Time, and dry Weather: They may be either made by laying them with *Turf*, or ſowing them with *Hay-Seed*, and raking them fine and level, and keeping them well roll'd and weeded; and if they are often mown, it will make the Graſs fine.

To prevent them from being moiſt, they may be laid a little rounding, and that will make them caſt off the Water the better; and after they are grazed, if they be covered with fine Gravel or Sand, it will dry up the Moiſture at the Top of them, and in a little Time make the Graſs finer than it was before, when the Sand or Stones are once ſtruck into the Ground; but it will be ſome Time before they are, and 'till ſuch Time they will be uneven and rough: But if they are laid on againſt *Winter*, and are often rolled, the Stones will quickly ſettle, ſo that the Graſs may be mown, tho' not at the firſt Time ſo ſhort as it ought to be.

If there be alſo a Water-Table on each Side the *Walk*, it will be very good to drain the *Walks*, and alſo to keep the Graſs and Weeds from mixing with the Borders; and it will make the *Walks* the handſomer, and look the more beautiful: theſe Water-Tables ought to be new cut once or twice a Year, and that ſhould be done by a ſtrait Line. See *Graſs*, *Turf*, *&c.*

As for *Terraſs-walks*; ſee *Terraſs*.

He adds, *Gravel-walks* are very good for Fruit-Trees; becauſe the Beams or Rays of the Sun reflect from them againſt the Walls.

2. WALLS.

As for the Matter, Dimenſions or Poſition of Walls, *&c.* ſee the Articles, *Gardens*, *Kitchen Garden*, *Orchard*, &c.

Mr. *Laurence* adviſes, that if it conveniently may be, the Walls of a Garden be not ſo built as to face directly the four Cardinal Points, *Eaſt*, *Weſt*, *North* and *South*, but rather between them, *viz.* *South Eaſt*, *South Weſt*, *North Eaſt* and *North Weſt*, for that then the two former will be good enough for the beſt Fruit; and the two latter good enough for *Plums*, *Cherries* and baking *Pears*.

Monſ. *Quintiney* adviſes to have the Walls of Gardens plaiſtered, to ſtop the Holes againſt *Earwigs*, *Rats*, *Snails*, and other Vermine which deſtroy the beſt of Fruit.

Mr. *Switzer* ſays, of all Materials proper for building Walls for Fruit Trees, Brick is the beſt; in that it is not only the handſomeſt, but the warmeſt and kindeſt for the Ripening of Fruit; beſides that, it affords the beſt Conveniency of Nailing; for ſmaller Nails will ſerve in them than in Stone-walls, where the Joints are larger: And Brick-walls, with Copings of Free-Stone, and Stone-Pilaſters or Columns at proper Diſtances, to ſeparate the Trees, and to break off the Force of the Winds, make not only the moſt beautiful, but the moſt profitable *Walls* of any others.

And whereas ſome have propoſed to build *Garden-walls* with half Rounds, every Semicircle being about ſix Yards in the Face or Diameter, and eight Yards round on the Outſide, each taking in two Trees; and ſo make two Foot Breadth of plain walling between every half round, on the Top of each of which may be placed a Flower Pot, of two Foot high, to contain a handſome Green, and a Vine planted at the Foot to fill up the Space to the Top: By means of theſe rounds, every Part of the Wall will enjoy a ſhare of the Sun, one time of the Day or the other; and the beſt Walls will not fail to be very hot by Reflection or Collection of the Beams of the Sun in the Rounds, and they will alſo be more ſecure from injurious Winds.

He adds, that he has known in ſome Parts of *England*, Walls built partly of Brick and partly of Stone, which have been exceedingly commodious. In ſome Places the Bricks are not ſubſtantial enough of themſelves for Walls; nor indeed are they any where ſo durable as Stone; and therefore ſome Perſons, that they might have Walls that were both ſubſtantial and wholſome have built double Walls the outſide being of Stone, and the inſide of Brick, or if you will, a Stone Wall lin'd with Brick.

And where Walls are built for Fruit againſt Terraſs Walks, to prevent the ill Effects of Damps, it is a very good Method to leave a Space of about two Foot the whole Length of the Wall, between the inner Wall next to the Bank of Earth, and the outward Wall which is to receive the Fruit, which will render the outward Wall always healthful; and the Product of the Fruit will anſwer the Pains.

Mr. *Laurence* ſays, in *Northamptonſhire*, and *Leiceſterſhire*, Walls made of Earth and Straw well tempered together are very common, which are called *Mud-Walls*; which, tho' they are not very handſome, he affirms, are better for the ripening of Fruit than either Stone or Brick Walls, as he himſelf has found by Experience; and though the Fruit is ſometimes apt to be ſoiled by great Daſhes of Rain, yet that is of no great Moment as to ſuch Fruit that requires paring, as *Pears*, *Peaches*, &c.

And if theſe Walls be made of good Earth, and be well tempered, Nails will do; but if not, Pegs of Wood may be made uſe of; and the Coping of Straw that is laid upon theſe Sorts of Walls, is of great Advantage to the Fruit in ſheltering them, and keeping off all perpendicular Rains.

Mr. *Fairchild* having obſerved that all *Peach* Trees, that grow in a ſhallow Soil with a gravelly Bottom, canker and decay as ſoon as they reach the Gravel, becauſe they want a due Quantity of Moiſture, adviſes, that where the Soil is ſuch, the Walls be built upon Arches, each Arch being four Foot wide, and the Peers between them two Foot apiece; the Top of the Arches to be as high as the Surface of the Border, and the Wall to face the *South* Sun, and the Trees to be planted at twelve Foot diſtance, which is one Tree in every ſecond Arch; and on the *North* ſide of the ſame Wall, to plant other Fruits in the vacant Arches.

By this Means, he ſays, the *Peaches* would have the Benefit of the Sun upon their Branches, and beſides they having the double Liberty of ſpreading their Roots, the Roots would be partly ſhaded, and enjoy a due Share of the *North* Border, and Moiſture to nouriſh them and their Fruit; and ſo by this Means they would be preſerved free from Cankers, and the curling of their Leaves, which is commonly a Forerunner of Death. Vines may be planted on the *South* ſide between the *Peaches*.

And as to thoſe Trees that are planted on the *North* Side of the Wall, he ſuppoſes that they would be much aſſiſted in their Vigour, by the Warmth of the Sun falling upon their Roots on the *South* Side of the Arches.

As to this Manner of Building of Walls, I do not approve it, becauſe;

1. If it be a Party Wall in a Garden, and be planted on both Sides, the Trees will run through and rob one another of their Nouriſhment.

2. If it be an outſide Wall, there are commonly Elms planted at ſome ſmall Diſtance, to break the Violence of the Winds and the Roots of theſe Elms will the more eaſily run through and rob the Trees of their Nouriſhment; but if there are not *Elms*, it is but ſeldom that there is as good Earth on the outſide of the Garden, as there is within.

3. Becauſe the worſt Inconveence will be, that it will entice the Roots of the Trees to run downright, which is a very great Fault in Fruit-Trees.

4. The Roots will not be able to find much Nouriſhment under a Brick Wall, where neither Sun nor Rain can come to give the Earth a true bearing Quality.

I have ſeen a Book written by a Fellow of the *Royal Society* for the further Improvement of Fruit by building Walls ſloping; But as I had never any practical Experience of ſuch a Wall, am of Opinion, that a perpendicular Wall is preferable to any other, or one rather hanging a little inward over the Fruit, if it could be ſo conveniently contrived.

For when the Sun is low, either in the *Spring* or *Autumn*, or in the Evening or Morning; thoſe Walls which lean ſloping backwards will have but a Glance of the Power of the Sun, but a perpendicular Wall has the Sun's Rays full againſt it, which is preferable to the greateſt Heats of the Sun at *Midſummer* upon a back ſloping Wall.

In *Autumn* the Sun is wanting to ripen Winter *Pears*, which ſhould be kept dry, which againſt ſloping Walls cannot, the Dews lying much longer on ſuch ſloping Walls, than on thoſe that are perpendicular; and beſides,

ſides, they are much more liable to Blights in the Spring, and are more expoſed to eddy Winds on all ſides.

Mr. *Mortimer* ſays, that if you have Vines or Fruit Trees which run upon the Tiles of any Building, or upon a Sloping, according to Mr. *Fatio*'s Propoſal, *Melon* Glaſſes may be ſet on the Fruit, which will much forward its ripening.

And he directs, that Wall-Trees ſhould be planted at ſuch Diſtances as the Height or Breadth of the Wall, the Nature of the Ground, and the Nature of the Tree require; the higher the Wall is the nearer the Trees may be planted together; and the lower the Wall is at the greater Diſtance they ought to be planted, that where they want it in Height, they may have Room to ſpread in Breadth, eſpecially Vines, which require a larger Space to ſpread againſt than other Fruit, it being certain that the more they ſpread the better they bear and thrive, which is contrary to the Opinion of all foreign Parts: And that the ſame may be obſerved of moſt other Wall-Fruit, eſpecially Apricocks and Pears, and therefore he is of Opinion, that moſt Walls are built too low, and that Trees with us are commonly planted too thick.

He therefore recommends the Propoſal made by Mr. *Fatio*, for ſloping Walls, that ſo what is planted againſt them may lie expoſed to the direct Beams of the Sun. Theſe ſort of Walls, he thinks, muſt be of great Advantage for the ripening of Fruit in our cold Climate, in that they break the Wind, and reflect the Sun Beams from one Wall to another.

To this he adds an accidental Experiment made by a Friend, who having a Wall, which ſtood a little facing to the *Eaſtward* of the *South*, whoſe Foundation was bad, he was obliged to make Buttreſſes about a Yard from the Wall on the planted ſide between each Tree; and this cauſed the Fruit to ripen much ſooner than it did before.

He alſo prefers Mr. *Langford*'s Contrivance of Building Walls in the Form of a Semicircle, which he propoſes to be about eight Yards in Circumference on the Inſide, and about ſix in Diameter, which, he ſays, he has found by Experience to do well: And he is of the ſame Opinion with Mr. *Langford*, eſpecially for *Vines*, becauſe they bear only on the Shoots of the ſame Year; which Shoots are apt to grow upright, and ſo muſt neceſſarily occaſion them to be at a greater Diſtance from the Wall, if they grow upon a ſloping Wall, than where they run parallel to an upright one.

And beſides, theſe circular Walls may with the more Conveniency be covered, which will not only be a great Advantage to *Vines*, in that the *Grapes* may be ſecurely permitted to hang on the *Vines* to ripen, as long as you pleaſe, without being in any Danger from the Froſts; and by the ſame Means, in the Spring of the Year, you may alſo ſecure the forward Fruit from being prejudic'd by Froſts, by covering them ; which, if they were upon other Walls, ſhould have Mats or Canvaſs hung before them from the Time that they firſt begin to bloſſom, 'till they are well knit or ſet ; and if there be Occaſion, for ſome Time after.

Mr. *Switzer* ſays, *Walls* that have an *Eaſt-Aſpect* are to be preferr'd before thoſe that have a *Weſt-Aſpect* ; becauſe the early Rays of the Sun do ſooner free the Fruit from Cold and pernicious Dews ; and this, of Conſequence, muſt render them more healthful to all Sorts of Fruit.

3. WALL-FLOWERS, *or Yellow* GILLIFLOWER.

Deſcription.]

THIS Plant is thus deſcrib'd by Monſ. *Liger:* It is a Plant, which ſhoots out from its Root oblong Leaves, pointed at the End, and of a *dark green* Colour: Between theſe Leaves grow ſeveral Branchy Stems, and on the Top of them the Flowers, of a *yellow* Colour, conſiſting ſometimes of four Leaves, and ſometimes more. When the Flower of the *ſingle Wall-Flower* is fallen, it is ſucceeded by a flat Pod, which contains flat broad *Seeds*, of a *reddiſh* Colour.

Different Sorts.]

Mr. *Mortimer* ſays, *Wall-Flowers* are of ſeveral Sorts ; and he reckons up, the *common* ones, the *great ſingle* ones, the *white ſingle* ones, the *great double* ones, the *double red*, the *double white*, and the *pale yellow*.

Mr. *Bradley* ſays, he has ſeen five Sorts of *Wall-Flowers* cultivated by Gardeners ; which for their pleaſant Odour and laſting Bloſſoms, very well deſerve a Place among the moſt delightful Flowers : He ſays, the moſt common Sort of them, is that with the *double yellow* Flower ; and thoſe which are the moſt rare, are the *double yellow* with *variegated* Leaves, the *double white*, the *bloody Wall-Flower*, the Leaves whereof are ting'd with *red*, and a new Sort with large *ſingle* Flowers, variegated with *brown* and *yellow*.

Way of Propagation, &c.] Mr. *Bradley* ſays, they may be rais'd or continued from *Slips*, planted in ſhady Places, either in *March*, *April*, *May* or *June* ; and will bloſſom about two Foot high from the Ground, much about the ſame Seaſon of the Year, the one as the other.

They delight in a ſandy Soil, or to grow among Rubbiſh.

Mr. *Mortimer* ſays, they are all increas'd or continued by *Slips*, planted in *March* ; ought to be ſet againſt a *South*-wall, nail'd up, and defended againſt Froſts and hard Weather, eſpecially the *double* ones ; and they will all flower the latter End of *March*, and in *April* and *May*.

Monſ. *Liger* ſays, the *ſingle Wall-Flowers* are multiply'd by *Seeds* ; and the *double* by *Layers* or *Slips*. That the *ſingle Wall-Flower* ſhould be ſown in *September*,

tember, in Earth, juſt as you find it, for it will grow any where, even upon Walls, or in Rubbiſh: They require the ſame Management as other Flowers, to be tranſplanted; and when they are grown ſtrong enough to be tranſplanted, plant them where you would have them, and water them.

As to the *double Wall-Flowers*, theſe, he ſays, are to be encreas'd by *Layers*; and directs, to chuſe the fineſt, and lay them in the Earth; ſtick them down with a hooked Stick, and give them due Waterings. This you may do as ſoon as the Plants have dropt their Flowers, which is commonly at the End of *May*, or Beginning of *June*; and you may take them up in *September* or *October*. If you plant them in the open Ground, you may do it in the Earth as it is; but if you plant them in Pots, he directs, to fill them with two Thirds of Kitchen-Garden Earth, and one Third of Mould, well ſifted. Theſe Pots muſt, in hard Weather, be ſet in the Green-Houſe; but rather for fear the Froſt ſhould break the Pots, than hurt the Plants. And as for them in the open Ground, you may venture to leave them to the Weather, for they are not in Danger of the Cold.

He ſays, the moſt frequent Way of multiplying *Wall-Flowers*, is by *Slips*, which are Branches of the Plant cut off without Roots above the Maſter-Root, after the Flower is paſt; and is as follows: Fill your Pots with Garden-Earth, well ſifted, and ſpread Mould thinly upon them; then ſet the *Slips* half their Length, and cloſe the Earth about them; water them, and ſet them in a ſhady Place, 'till they begin to be in Action, and then remove them into a ſunny Place; and when they have taken Root, and are fit to be tranſplanted, tranſplant them where you pleaſe; water and weed them as Occaſion requires.

Mr. *Bradley* ſays, That Sort of *Wall-Flowers* with *large ſingle Flowers*, variegated with *yellow* and *brown*, may be more eaſily propagated by *Seeds* ſown in *March*.

He adds, that the Seed-Veſſels of this, and the other *ſingle* Kinds of it, as well as their Flowers, are ſo like to thoſe of the *Stock July-Flowers*, that he is of Opinion, they may be made to impregnate each other's *Seeds*, if they were planted nigh enough together; and that from ſuch Coupling, perhaps a *Stock July-Flower*, with *yellow* Bloſſoms, might be produced. And altho' the *Seed* of ſuch a neuteral Plant would not be made to grow, yet the Species might be continued and increaſed by planting *Slips* or *Cuttings* of it, as is common in the Culture of *double* Stocks.

And to enable theſe Plants to endure the Severity of the *Winter*, cover them with great Straw, or large, round Dung; and uncover them when the Seaſon is milder, and the Sun ſhines out; and in *March* they will ſhoot out to a ſufficient Growth, and be fit to be replanted either by the End of *March*, or Beginning of *April*.

4. WALLNUT-TREES.

Different Kinds.] MR. *Mortimer* ſays, The *Wallnuts* are of ſeveral Sorts; as the ſmall, hard Shell, and the large, ſoft Shell; and in like Manner, the Wood is different, ſome is of a *blacker* Grain, and ſome of a *whiter* Grain than the other. The hardeſt and ſmalleſt *Nuts* are produced by the *black*-grain'd Tree, the Timber of which is to be preferr'd before the other. The beſt Sort of theſe, are thoſe which grow in *Virginia*, which bear a Kind of a ſquare *Nut*: And next to theſe, are thoſe of *Grenoble*, which are much priz'd by Cabinet-Makers

Mr. *Bradley* ſays, Tho' *Botaniſts* reckon many Sorts of *Wallnuts*, he only recommends two Sorts to be planted; that with the *black* Grain, for the Goodneſs of its *Timber*, and that with the *ſoft* Shell, for the Sake of the *Fruit*.

Way of Propagation.] The beſt Way of raiſing theſe Trees, is by the *Nut*: Take the *Nuts* of a young, thriving *Wallnut-Tree*, that have a plump, full Kernel; (it is beſt that they be beaten off the Tree three or four Days before they would fall of themſelves) and lay them by either in their Husk or without it; or having dry'd them, lay them in Sand or good Earth till the latter End of *February*, or Beginning of *March*; and ſet them like *Beans*: And if you can preſerve them with the Husk on, ſet them ſo, becauſe the Bitterneſs of it is a good Preſervative againſt Worms. You may alſo chop ſome *Furz* and ſtrew about them under the Ground, and that will be a good Expedient to defend them from the Rats and Mice.

Mr. *Bradley* ſays, the two Kinds, he mentions, are both rais'd of *Nuts*, and ſhould be ſown in the Places where they ought to remain. They are in great Danger of dying, if they loſe their Tap-Root; but will thrive very well if they have Depth of Earth to ſtrike into.

Soil.] *Wallnut-Trees* will grow very well in *Loam*; yet they will alſo flouriſh very well in *Chalk*, or a *gravelly* Soil, either in a Vale, or on hilly Ground.

Mr. *Mortimer* ſays, they delight moſt in a *dry*, *ſound*, *rich Mould*, eſpecially if they have *Chalk*, or *Marle*, underneath them; but they will grow well enough on any Land that is dry, where they are rais'd from the *Nut*, and protected from the Cold (tho' they like Cold better than extreme Heat,) and grow in Pits, Valleys, High-way-Sides; alſo in *Lime-ſtone* Ground, if *loamy*, and on Hills that are *chalky*.

It is beſt that the *Nuts* for theſe Trees be ſown in the Places where they are deſign'd to ſtand; becauſe Tranſplantation is not very agreeable unto them; but if they muſt be remov'd, you may tranſplant them at about two Years old; and if you remove them again, do it before they are four Years old, and not after that Time. The beſt Time to remove them, is in *November* and *February*; and the beſt Compoſt for them is Aſhes.

When you remove them, plant them again in the ſame Sort of Land they were rais'd on; for it will be difficult to make them grow and thrive in a different Soil. Be as ſparing of the Roots as you can, for any thing of a Bruiſe is prejudicial to them; and by no Means cut the Head, becauſe of the hollow Pith, which is apt to let in the Water, and only ſhred up the Side-Branches. You may alſo lay a Tile under, to make the Tap-Roots ſpread; and you may either graft them or bud them, which will improve the Largeneſs of the Fruit. Theſe Trees very much ſpreading both their Roots and Branches, it will be convenient to plant them at leaſt at forty Foot Diſtance.

And they are ſo far from prejudicing Land, that in *France* they plant them in their Corn-Fields, and look upon them advantageous to their Corn, in preſerving it from the Cold: And it being a Tree that roots deep, where the Soil will allow it, the Roots are no Hindrance to the Plough.

Mr. *Bradley* ſays, he has often thought *Walnuts* might be grafted, as well as any other *Fruit-Tree*: He approves of the large *French Walnut* as the beſt, not only for its tender Shell, but its ſweet Taſte, and extraordinary Bigneſs; but indeed it will not keep ſo well as the ſmaller Sort, nor is it ſo great a Bearer; but he thinks it might be brought to Bearing ſooner, by Grafting, and alſo in greater Quantity than when it grows wild, as is found by Experience in many other Fruits.

He tells us, he has ſeen *Wallnut-Trees* of forty Years Growth from the ſetting of the *Nuts*, which were valued to be worth Five Pound a Tree, when at the ſame Time there were others ſtanding by them, that were planted at the ſame Time (as the Owner informed him) that were not worth thirty Shillings a Tree: So great is the Difference in the Growth of downright rooted Plants, when they are ſet from *Nuts* or *Acorns*, and in thoſe that are tranſplanted out of the Nurſery.

The like Obſervation has been made of other *Tap-rooted* Trees, and particularly the *Oak*.

Mr. *Cook* ſays likewiſe, that he has often experienc'd as to a *Walnut-Tree* ſet of a *Nut*, and never remov'd in its Minority, but ſtill keeping its Place of Situation 'till it is ſix or ſeven Foot high; that in removing ſuch a Tree, you ſhall find near as much Hazard in the growing of that Tree, as in removing an *Oak* of the ſame Stature, provided the *Oak* hath had its Abode in the open Air, and not been tenderly nurſed up in a Wood.

5. WASPS.

THE *Waſp* is a miſchievous Vermin to all Manner of choice Fruit when it is ripe. One

Way ſome recommend for deſtroying them is, about the Evening to put lighted Pieces of Brimſtone Rags into the Holes where the *Waſps* Neſts lie; and then preſently to throw a Spit of Earth over the Hole or Holes, for ſometimes there are ſeveral of them.

Mr. *Bradley* tells us, That conſidering the *Waſp* does ſo much Miſchief to ripe Fruit, as generally (if numerous) to deſtroy a third Part of it; he is of Opinion, that it would be worth while to follow the Practice of ſome Gentlemen, who give People about the Place a certain Reward for every *Waſps-Neſt* they deſtroy, and bring it as a Proof of their Performance, to be burnt at the Place where they are to receive the Money; and they will hardly ever appear about that Place again. That this having been practiſed near *Hoxton*, Mr. *Fairchild* ſays, he hardly ſaw half a Score in his Gardens, in the Summer 1723. And that tho' this has been done by one ſingle Gentleman at the Expence of about Five Pounds, yet it would be beſt were it done at a publick Expence.

Mr. *Dubois*, to eaſe the Pain procur'd by the Sting of a *Waſp*, directs, that it be done by applying a Copper Half-penny to the wounded Part, and to hold it there for a little Space; and it will not only eaſe the Pain, but prevent the Swelling.

Mr. *Milward* ſays, that if you apply ſome of the Juice either of the Leaves or Fruit of a *Fig-Tree*, the Place ſtung by a *Waſp*, if the Sting be never ſo violent, the Pain will immediately ceaſe, and the Swelling abate.

5. WATER.

WATER is one of the moſt conſiderable Requiſites belonging to a Garden: If a Garden be without it, it brings a certain Mortality upon whatſoever is planted. By Waterings the great Droughts in *Summer* are allay'd, which would infallibly burn up moſt Plants, had we not the Help of Water to qualify thoſe exceſſive Heats. Beſides, as to noble Seats, the Beauty that *Water* will add, in making *Jet d' Eaux*, *Canals* and *Caſcades*, which are ſome of the nobleſt Ornaments of a Garden.

Sir *Iſaac Newton* defines *Water* (when pure) to be a very fluid Salt; volatile and void of all Savour or Taſte; and it ſeems to conſiſt of ſmall, hard, porous, ſpherical Particles, of equal Diameters, and equal ſpecifick Gravities; and alſo that there are between them, Spaces ſo large, and rang'd in ſuch a Manner, as to be pervious on all Sides.

Their *Smoothneſs* accounts for their Sliding eaſily over the Surfaces of one another.

Their *Sphericity* keeps them from touching one another in more Points than one; and by both theſe, their Frictions in Sliding over one another, is rendred the leaſt poſſible.

The *Hardneſs* of them, accounts for the *Incompreſſibility* of *Water*;

Water, when it is free from the Intermixture of Air.

The *Poroſity* of *Water* is ſo very great, that there is at leaſt forty Times as much Space as Matter in it; for *Water* is nineteen Times ſpecifically lighter than *Gold*, and of Conſequence rarer in the ſame Proportion. But *Gold* will (by Preſſure) let *Water* paſs thro' its Pores; and therefore may be ſuppos'd to have (at leaſt) more Pores than ſolid Parts.

Monſ. *L'Clerk* ſays, there are theſe Things obſervable in *Water*, which Naturaliſts ſtudy to know and account for:

1. It is *tranſparent*; becauſe as ſome are of Opinion, it conſiſts of flexible Particles, like Ropes, which are not ſo cloſe as to leave no Pores; nor ſo entangled but that there are right Lines enough to tranſmit the Light.

For ſince the Particles are not join'd cloſe together, and are in perpetual Motion, the very fine Particles of Light do eaſily paſs through their right Lines; unleſs the *Water* be very deep, or be put into Motion, by ſome outward Cauſe. Then indeed the *Tranſparency* of *Water* is very much obſtructed, and it looks of a cloudy, obſcure Colour, as it is obvious to Sight in a rough Sea: For at ſuch a Time, the vehement Agitation of the *Water* diſturbs their Pores, and ſpoils their Straitneſs.

2. *Water* is liquid, but capable of being fix'd: *Water* ſeems to be liquid for the ſame Reaſon as other Bodies are ſo. For ſince the Particles of it are flexible, like Ropes, and leave Pores between one another, which are fill'd with finer Matter, when this Matter is put into a vehement Commotion, the Particles are eaſily toſs'd about every Way: Yet when the Motion of this reſtleſs Matter is reſtrain'd, as it is in *Winter*, then the *Water* congeals into *Ice*; whether this comes of Cold only, or there be beſides, nitrous Particles, which fall out of the Air at that Time, and with their Rigidneſs fix the watery Particles.

3. It may be made *hot* or *cold*. The Particles of *Water* being, as has before been ſaid, *Ice*, is ſoon diſſolv'd by the Motion of the Particles of Fire: For the Particles of Fire, getting into the Pores of the Ice, do mightily ſhake the fine, flexible Particles of Ice, and reſtore them to their former Motion in a little Time.

But if this *Water* be ſet in cold Air, the fiery Particles will quickly vaniſh, and the *Water* will become as cold as before.

4. *Water* eaſily evaporates by the Heat of Fire or Air. This is becauſe its Particles are quickly ſeparated, and got into Motion; ſo that the airy Particles eaſily carry thoſe of the *Water* about with them.

5. It is heavy, if compared with Air and other Bodies, but much heavier than Air. It has been ſhown, by various Experiments, that the Gravity of the *Air*, in the Place where we live, is to that of *Water*, as one to eight hundred, or ſomething more; ſo that *Water* is about

eight hundred Times heavier than Air. And for this Reaſon, a Bladder or any other Thing fill'd with *Air* can hardly be ſunk under *Water*: And indeed, to make *Air* ſink, there muſt be a Weight added to it, that ſhall exceed the Weight of the *Water*, as much and ſomething more than that of the *Water* exceeds that of the *Air*. Hence it comes to paſs, that *Water* eaſily ſupports *Wood*, and vaſt Ships fraught with the heavieſt Cargo; for the Weight alone will never ſink them, unleſs the Goods and Veſſel together ſhould make up a Weight which exceeds that of *Water*: And as Salt-*water* is heavier than freſh, ſo it bears greater Weight.

Thoſe Things which are heavier than *Water*, as Stones, Metals, *&c.* when they are thrown into it, go ſtrait down to the Bottom; and as their Weight is greater, by ſo much the quicker: While other Bodies, which are of the ſame Weight with the *Water*, do neither float on the Surface, nor ſink quite down, but remain ſuſpended between the Top and Bottom, as is ſeen in the Carcaſſes of Animals.

6. *Water* is inſipid, and without Smell. The Reaſon is, becauſe its flexible Parts ſlip gently over the Tongue, and are not ſharp enough to prick the Nerves and affect the Taſte: But this is to be underſtood of pure *Water*, void of all kind of Salt; ſuch as diſtill'd *Water* is, and next that of *Rain*: For the moſt wholſome *Fountain-water* commonly derives a Saltneſs from the Earth: Tho' in this Place is not meant medicinal, Fountain-waters, the Taſte of which is more acute, but ſuch *Water* as is uſually drank.

And that it is without *Smell*. The purer any *Water* is, the leſs Smell it has; for the Reaſon why the Particles don't prick the Tongue, is likewiſe the Reaſon why they don't affect the Smell: The Flexibility and Smoothneſs of *Water*, is ſuch, that they cannot pierce the olfactory Nerves; *Fountain-water* has indeed ſome Smell, but then it is a Sign that ſuch *Water* is not pure.

7. *Water* is ſubject to putrify, according as the Place is where it is kept. *Water* will grow thick and ſtinking, by Heat and Reſt, as we find it does in Ponds and Marſhes, and in cloſe Veſſels: But here it ought to be remember'd, that this is what was ſpoken of before, as ſuch *Water* as is not pure; for unmixt *Water* cannot putrify. This is prov'd, Firſt, by diſtill'd *Water*, which may be kept very long without Putrefaction.

Secondly, by *Rain-water*, which is caught in clean Veſſels, and preſently ſtopp'd up cloſe and buried under Ground, which is kept many Years in Countries where they want Fountains. This ſhews, that the Cauſe of Putrefaction is not in the *Water* it ſelf, but in other Things that are mingled with it; becauſe pure *Water*, ſuch as is diſtill'd or comes out of the Clouds, keeps ſweet for a vaſt while: But then thoſe Veſſels, in which ſuch *Water* is kept, muſt be ſo well ſtopp'd, that the leaſt Flie may not get into them, and they muſt be made of ſuch ſtuff as will not corrupt, ſuch as Glaſs or Clay.

But as for ſtanding *Water* in Ponds or Marſhes, that is corrupted two Ways.

1. By the Nature of the Soil, which often abounds with noiſom Sulphur, whereby the *Water* is impregnated and comes to ſmell in warm Weather; as it does at *Amſterdam*, not only in the Trenches, but wherever the Ground is opened for the Foundations of Houſes. This Putrefaction is owing to the Soil, and not to the *Water*.

2. By the naſty Things that are thrown into it, or Bodies of Inſects which die it; as alſo by the Eggs of Flies, which are drop'd about wherever they go, and breed Worms. *Water* is corrupted in wooden Veſſels, eſpecially at Sea, by the ſulphurous Parts of the Wood, and by uncleanly Things, as Flies Eggs, *&c.*

Water penetrates the Pores of thoſe Bodies whoſe Pores are wide enough to receive its Particles. Thus it enters the Pores of Sugar and Salts, ſo as to ſeparate and quite diſſolve their Particles; but it cannot get into the Pores of Stones, or but a very little Way; ſo that it only wets their Surface, without diluting them; hangs on the outſide of them becauſe they are rough, and becauſe the Extremities of their Pores are open a little Way. But ſuch Bodies, when they are wet are ſoon dryed in the Air, becauſe the Motion of the airy Particles carries off the ſoft and ſmooth Particles of the *Water*.

It is obſervable, that if Bodies rubbed over with Oil or fat, be dipt in Water, they get very little Wet, becauſe the Roughneſs of their Surface wherein the Water ſhould hang is ſmoothed and made even by the Fat, and the Mouths of the Pores are cloſed up; ſo that there is nothing left for the watery Particles to hold by, and therefore they muſt needs ſlide off.

Dr. *Cheyne* obſerves, that the Quantity of Water on this ſide our Globe does daily decreaſe; ſome Part thereof being every Day turned into *Animals*, *Metalline*, *Mineral* and *Vegetable* Subſtances; which are not eaſily diſſolved again into their component Parts; for if you ſeparate a few Particles of any Fluid, and faſten them to a ſolid Body, or keep them aſunder one from another, then they are no more fluid; for a conſiderable Number of ſuch Particles are required to produce Fluidity.

Moſt Liquors are formed by the Coheſion of Particles of different Figures, Magnitudes, Gravities and attractive Powers, Swimming in pure Water, or an aqueous Fluid; which ſeems to be the common Baſis of all.

And the only Reaſon why there are ſo many Sorts of Water differing from one another by different Properties is, that the Corpuſcles of Salts and Minerals, with which that Element is impregnated, are equally various.

Wine is only *Water* impregnated with particles of *Grapes*. And *Beer* is *Water* impregnated with Particles of *Barley*, *&c.* All Spirits ſeem *Water* ſaturated with *ſaline* or ſulphureous Particles.

And all Liquors are more or leſs fluid, according to the greater or ſmaller Coheſion of the Particles, which ſwim in the aqueous Fluid; and there is hardly any Fluid without this Coheſion of Particles, not even pure Water it ſelf, as will appear from the Bubbles which will ſometimes ſtand in the Surface of it, as well as on that of Spirits and other Liquors.

Water contributes much to the Growth of Bodies, in that it both renders and keeps the active Principle fluid; ſo that they are capable of being conveyed by Circulation into the Pores.

The learned Mr. *Halley* has demonſtrated, that if an Atom of Water be expanded into a Shell or Bubble, whoſe Diameter ſhall be ten Times as great as before, ſuch an Atom would be ſuperficially lighter than Air, and will riſe ſo long as that Flatus, or warm Spirit, which at firſt ſeparated it from the Maſs of Water, ſhall continue to diſtend it to the ſame Degree, but when that Warmth declines, and the Air grows cooler, and withal ſpecifically lighter; theſe Vapours will ſtop at a certain Region of the Air, or elſe deſcend.

Therefore if it ſhould be ſuppoſed that the whole Earth were covered with Water, and that the Sun ſhould make his diurnal Courſe round it, as now he does, he is of Opinion, that the Air would be impregnated with a certain Quantity of aqueous Vapours, which it would retain in it, like Salts diſſolved in Water, and that the Sun in the Day-time warming the Air, that Part of the Atmoſphere would ſuſtain a greater Proportion of Vapours (as warm Water will hold more Salt in it diſſolved than cold) which by the Abſence of the Vapours at Night would be diſcharged into Dews.

And in this caſe he concludes there could not be any Diverſity of Weather other than periodically every Year alike; the Mixture of all terreſtrious, ſaline, and heterogeneous Vapours here being excluded, which he judges to be, when variouſly compounded and driven by Winds, which are the Cauſes of theſe various Seaſons, and Changes of Weather which we now find.

But if inſtead of ſuppoſing an Earth covered all over with Water, you ſuppoſe the Sea interperſed about wide and ſpacious Tracts of Land, and alſo divided by high Ridges of Mountains, ſuch as the *Alps*, the *Apennine*, and the *Pyrenean* in *Europe*; the *Caucaſus*, the *Imaus*, and the *Taurus* in *Aſia*; the Mount *Atlas* and the *Mountains of the Moon* in *Africa*; the *Andes* and *Apalatean* Mountains in *America*; each of which ſurpaſſes the uſual

Height to which the aqueous Vapours do of themſelves aſcend; and on the Tops of which the Air is ſo cold and rarified as to retain but a ſmall Part of thoſe Vapours, which are brought thither by the Winds.

Then the Vapours thus raiſed from the Sea, and carried by the Winds over the low Lands to thoſe Ridges of Mountains, are there compelled by the Streams of the Air to mount with it up to their Tops, where the Water preſently precipitates, gleeting down by the Crannies of the Stones; and Part of the Vapours entring into the Caverns of the Hills, the Water thereof gathers, as in an Alembick in the Baſons of Stones; and theſe being once full, the Overplus of the Water runs down at the loweſt Place of the Baſon, and breaking out by the Sides of the Hills, forms ſingle Springs; many of which running down by the Vallies or Guts, between the Ridges of the Hills, and after uniting, form little Rivulets, or Brooks; and many of theſe meeting again form large Rivers.

Dr. *Woodward* has made theſe uſeful Experiments of Water following;

He tells us, that he choſe ſeveral Glaſs Phials, which were all as near as poſſible of the ſame Shape and Bigneſs; that he put Water into every one of them, as much as he thought fit, and took an Account of the Weight of it, then ſtrain'd and tied a piece of Parchment over the Surface of each Phial, and made a Hole in the middle of it large enough to admit the Stem of the Plant he deſigned to ſet in the Phial, without confining or ſtraitening it, ſo as to hinder its Growth. This Deſign was to hinder the incloſed water from evaporating or aſcending any other Way, than only through the Plant that was in it.

Then he made Choice of ſeveral ſprigs of Mint, and other Plants, that were, as near as he could judge, alike freſh, ſound and lively; and having taken the Weight of each, he placed it in a Phial, ordered as above; and as the Plant imbibed and drew off the Water he added more from Time to Time, keeping an Account of the Weight of all he added.

Each of the Glaſſes were, for the better Diſtinction and the more eaſy keeping a Regiſter noted with a different Mark or Letter, as A, B, C, &c. and all ſet in a Row in the ſame Window, that they might all partake alike of the Air, Light and Sun.

Thus they continued from *July* the twentieth, to *October* the fifth, which was juſt ſeventy ſeven Days; then he took them out and weighed the Water in each Phial, and the Plant alſo, adding to its Weight that of all the Leaves which had fallen off during the Time it ſtood thus. And laſtly, he computed how much every Plant had gained, and how much Water was ſpent upon it. The Particulars are as follows.

A, a *common* Spear-mint ſet in *Spring-Water*.

When the Plant was put in in *July* the twentieth it weighed juſt twenty-four Grains; when taken out *October* the fifth, it weighed forty-two Grains; ſo that in the Space of ſeventy ſeven Days it had gain'd in Weight fifteen Grains.

The whole Quantity of Water expended during the ſeventy ſeven Days amounted to two thouſand five hundred and fifty eight Grains; and conſequently, the Weight of the Water taken up was one hundred ſeventy and $\frac{8}{15}$ times as much as the Plant had got in Weight.

B, common *Spear-mint* ſet in *Rain-water*, the *Mint* weighed, when put in, twenty eight Grains and an half, and when it was taken out forty five Grains $\frac{1}{4}$, having gained in ſeventy ſeven Days ſeventeen Grains and an half.

The whole Quantity of *Water* expended was three thouſand and four Grains which was an hundred ſeventy one $\frac{23}{35}$ times as much as the Plant had received in Weight.

C, common *Spear-mint* ſet in *Thames-water*. The Plant when put in weighed twenty eight Grains, when taken out fifty four Grains, ſo that in ſeventy ſeven Days it had gained twenſix Grains.

The whole of the *Water* expended, amounting to two thouſand four hundred ninety three Grains which was ninety five $\frac{23}{26}$ times as much as the additional Weight of the Mint.

D, The common *Solanum*, *Nightſhade* ſet in *Spring-Water*. The Plant weighed, when put in, forty nine Grains, and when taken out one hundred and ſix Grains, having gained in ſeventy ſeven Days fifty ſeven Grains.

The *Water* expended during the ſeventy ſeven Days was three thouſand ſeven hundred and eight Grains, which was ſixty five $\frac{3}{57}$ as much as the Augment of the Plant.

The *Spearmint* D had ſeveral Buds upon it, when firſt ſet in *Water*; theſe in ſome Days became fair Flowers, which were at length ſucceeded with Berries.

Several other Plants were try'd that did not thrive in *Water*, or ſucceed better than the *Cataputia*.

F, *Lathyris* or *Cataputia Gerh*, ſet in *Spring-water*; it weighed, when ſet in, ninety eight Grains, when taken out one hundred and one Grains and an half. The additional Weight for the ſeventy ſeven Days being but three Grains and an half.

The Quantity of *Water*, ſpent upon it during that Time, was two thouſand five hundred and one Grains, which is ſeven hundred fourteen times $\frac{4}{7}$ as much as the Plant was augmented.

F, G, Thoſe two Phials ſo marked, were filled, the former with *Rain*, and the latter with *Spring-water*, at the ſame time that the other before mentioned were, and ſtood as long as they did, but had neither of them any Plant, his Deſign in this being only to inform himſelf, whether any Water exhaled out of the Glaſſes, otherwiſe than thro' the Bodies of the Plants. The Orifices of theſe Glaſſes were covered with Parchment, each Piece being perforated with a Hole, of the ſame Bigneſs with the other. And he ſuſpended a Bit of Stick, about the Thickneſs of the Stem of one of the aforeſaid Plants, but not reaching down to the Surface of the included Water. Theſe he put in thus, that the Water in theſe might not have more Scope to evaporate, than that in the other Phials.

Thus they ſtood the whole ſeventy ſeven Days in the ſame Window with the reſt; when, upon Examination, he found none of the Water in theſe waſted or gone off: Tho' he obſerved, both in theſe and the reſt, eſpecially after hot Weather, ſmall Drops of Water adhering to the Inſides of the Glaſſes; that Part of them that was above the Surface of the incloſed Waters.

The Water in theſe two Glaſſes that had no Plants in them, at the End of the Experiment, exhibited a larger Quantity of terreſtrial Matter, than that in any of thoſe that had the Plants in them did. The Sediment in the Bottoms of the Phials was greater, and the *Nubeculæ* diffus'd thro' the Body of the Water, was thicker.

And of that which was in the others, ſome of it proceeded from certain ſmall Leaves that had fallen from that Part of the Stems of the Plants, that was within the Water, wherein they rotted and diſſolved. The terreſtrial Matter in the Rain-water was finer than that in the Spring-water.

In the Year 1692, he made the following Experiments with *Hyde-Park* Conduit-water. The Glaſſes, he made Uſe of in this, were of the ſame Sort with thoſe of the former, and covered over with Parchments, in like Manner. The Plants were all *Spearmint*, the moſt kindly, freſh, ſprightly Shoots he could chuſe. The Water and the Plants were weighed as before, and the Phials ſet in a Line in a *South*-Window; where they ſtood from *June* the ſecond to *July* the twenty-eighth, which was juſt fifty ſix Days.

H. *Hyde-Park* Conduit-water alone. The *Mint* weighed, when put in, one hundred twenty ſeven Grains; when taken out, two hundred fifty five Grains: The whole Quantity of Water expended upon this Plant, amounted to fourteen thouſand one hundred and ninety Grains. This was all along a very kindly Plant, and had run up above two Foot in Height: It had ſhot but one conſiderable Branch, but had ſent forth many and long Roots, from whence ſprung very numerous and ſhort Fibres. Theſe leſſer came out of the larger, on two oppoſite Sides for the moſt; ſo that each Root with its *Fibrilla* appeared not unlike a ſmall Feather. To theſe *Fibrillæ* pretty much terreſtrial Matter adhered. There was a *green* Subſtance in the Water, reſembling a fine, thin *Conſerva*, which was at laſt thick and turbid.

The Plant I. The ſame Water alone. The *Mint* weighed when put in, one hundred and ten Grains; and when taken out, two hundred forty nine: The Water expended was thirteen thouſand one hundred and forty Grains.

This was as kindly as the former; but had ſhot no collateral Branches. The Roots of it, the Water, and the *green* Subſtance, all much as in the former.

The Plant K. The *Mint* was ſet in *Hyde-Park* Conduit-water, in which was diſſolved an Ounce and a half of common Garden-Earth. It weighed, when put in, ſeventy ſix Grains; when taken out, two hundred forty four Grains: Water expended, ten thouſand ſeven hundred and thirty one Grains. Tho' this Plant had the Misfortune to be annoy'd with very ſmall Inſects, that happened to fix upon it, yet had ſhot very conſiderable collateral Branches, and at leaſt as many Roots as either in H or I, which had a much greater Quantity of terreſtrial Matter adhering to the Extremities of them. The ſame *green* Subſtance here that was in the two preceeding.

L was ſet in *Hyde-Park* Conduit-Water, with the ſame Quantity of Garden Mould as in the former. The *Mint* weigh'd, when put in, ninety two Grains; when taken out, three hundred ſeventy ſix Grains: And the Water which was expended, was fourteen thouſand nine hundred and fifty Grains.

This Plant was more flouriſhing than any of the preceedent, had ſeveral conſiderable collateral Branches, and very numerous Roots, to which terreſtrial Matter adhered very copiouſly.

The Earth in both theſe Glaſſes was very ſenſibly and conſiderably waſted, and leſs than when firſt put in. The ſame Sort of *green* Subſtance here as in thoſe above.

The Plant M was ſet in *Hyde-Park* Water, diſtill'd off with a gentle Still. It weigh'd, when put in, one hundred and fourteen Grains; when taken out, one hundred fifty five: The Water expended was three thouſand eight hundred and three Grains.

This Plant was pretty kindly, had two ſmall collateral Branches, and ſeveral Roots, tho' not ſo many as that in H or I; but as much terreſtrial Matter adhering to them, as thoſe had. The Water was pretty thick, having very numerous, ſmall terreſtrial Particles ſwimming in it, and ſome Sediment at the Bottom of the Glaſs. This Glaſs had none of the *green* Matter above-mention'd in it.

N was ſet in the Reſidue of the Water, which remain'd in the Still after that in M was diſtill'd off. It was very turbid, and as high coloured (*reddiſh*) as ordinary Beer. The *Mint* weigh'd, when put in, eighty one Grains; when taken out, one hundred ſeventy five Grains. The Water expended was four thouſand three hundred forty four Grains.

This Plant was very lively, and had ſent out ſix collateral Branches, and ſeveral Roots.

The Glaſs O, had *Hyde-Park* Conduit-water, in which was a Dram of diſſolved Nitre.

The *Mint*, ſet in this, ſuddenly began to wither and decay, and in a few Days died; as likewiſe did two more Sprigs that were ſet in it ſucceſſively.

In another Glaſs he diſſolved an Ounce of good Garden-Mould, and a Dram of Nitre.

And in a third, half an Ounce of Wood-Aſhes, and a Dram of Nitre; but the Plants in theſe ſucceeded no better than the former.

In other Glaſſes he diſſolved ſeveral Sorts of Earth, Clays, Marles, and Variety of Manures, &c. and ſet *Mint* in diſtilled Water, and made other Experiments of ſeveral Kinds, to get Light and Information, as to what haſtened or retarded, promoted or impeded Vegetation.

The Glaſs P, was *Hyde-Park* Conduit-water: In this he fixed a Glaſs-Tube ten Inches long, the Bore about one ſixth of an Inch Diameter, filled with very fine and *white* Sand, which he kept from falling down out of the Tube into the Phial, by tying a thin Piece of Silk over that End of the Tube that was downwards.

Upon immerſing the lower End of it into the Water, this (by little and little) aſcended quite to the upper Orifice of the Tube: And yet in all the fifty ſix Days that it ſtood thus, a very inconſiderable Quantity of Water had gone off, *viz.* ſcarcely twenty Grains, tho' the Sand continued moiſt up to the Top, 'till the very laſt.

The Water had imparted a *green* Tincture to the Sand, quite to the very Top of the Tube: And in the Phial it had precipitated a *greeniſh* Sediment mixed with *black.*

Pretty much of the *green* Subſtance, deſcribed above, adhered to the Bottom and Sides of the Tube, as far as it was immerſed.

Other like Tubes he filled with *Cotton*, *Lint*, *Pith* of *Elder*, and ſeveral other porous vegetable Subſtances; ſetting ſome of them in clear Water, others in Water ting'd with *Saffron*, *Cochineal*, &c. and made ſeveral other Tryals, to give a mechanical Repreſentation of the Motion and Diſtribution of the Juices in Plants, and ſome other *Phænomena* obſervable in Vegetation.

Several Plants being alſo ſet in the Phials, Q, R, S, &c. were ordered after the ſame Manner with thoſe above, in the following colder Months; theſe throve not near ſo much, nor did the Water aſcend in nigh the Quantity it did in the hotter Seaſons, in which the before cited Tryals were made.

From theſe Experiments, theſe *Obſervations* proceed:

Obſervation 1. *In Plants of the ſame Kind, the leſs they are in Bulk, the ſmaller Quantity of the fluid Maſs in which they are ſet, is drawn off; the Diſpendium of it, where the Maſs is of* *equal Thickneſs, being pretty nearly proportioned to the Bulk of the Plant.*

Thus the Plant in the Glaſs mark'd A, that weigh'd twenty ſeven Grains, drew off but two thouſand five hundred fifty eight Grains of the fluid; and that Plant in B, that weigh'd twenty eight and $\frac{1}{4}$, took up but three thouſand and four Grains of the fluid; whereas that Plant in H, that weigh'd one hundred twenty ſeven Grains, took up fourteen thouſand one hundred and ninety Grains of the liquid Maſs.

The *Water* ſeems to aſcend up the Veſſels of Plants, much after the ſame Manner as up a Filter; and it is no ſtrange Thing, that a larger Filter ſhould draw off more Water than a leſſer one; or that a Plant, that has more and larger Veſſels, ſhould take up a greater Share of the fluid in which it is ſet, than one that has fewer and ſmaller ones can.

This he does not note, as a Thing very conſiderable in it ſelf, but chiefly in Regard to what he is about to offer anon; and that it may be ſeen, that in other Collations of Things he has made a due Allowance for this Difference.

Obſervation 2. *The much greateſt Part of the fluid Maſs that is firſt drawn off, and convey'd into the Plants, does not ſettle nor abide there, but paſſes thro' the Pores of them, and exhales up into the Atmoſphere.*

It is certain, That the Water in theſe Experiments aſcended only through the Veſſels of the Plants. The Glaſſes F and G, which had no Plants in them, (tho' they were diſpos'd of in the like Manner as the reſt were) remained at the End of the Experiment as at firſt, and none of the Water was gone off: And it is as certain, that the greateſt Part of it flies off from the Plant into the Atmoſphere.

The leaſt Proportion of the Water expended, was to the Augmentation of the Plant, as forty ſix or fifty to one; and in ſome, the Water drawn off was a hundred, two hundred, nay in one above ſeven hundred Times as much as the Plant had receiv'd of Addition.

This ſo continual an Emiſſion and Detachment of Water, in ſo great Plenty from the Parts of Plants affords a manifold Reaſon, why thoſe Countries which abound with Trees, and the larger Vegetables eſpecially, ſhould be very obnoxious to Damps, great Humidity in the Air, and more frequent Rains than others are which are more open and free.

The great Moiſture in the Air was a mighty Annoyance to thoſe who firſt ſettled in *America*, which then was much overgrown with Woods and Groves: But as they were burnt and deſtroy'd, to make Room for Habitations and the Culture of the Earth, the Air mended, and cleared up apace, and became of a Temper much more dry and ſerene than before.

Nor does this *Humidity* go off pure and alone, but uſually carries out along with it many

Parts of the ſame Nature, whereof the Plants, through which it paſſes, do conſiſt.

It is true, the *Craſſer* are not ſo eaſily born up into the Atmoſphere, but are uſually depoſited on the Surface of the Flowers, Leaves, and other Parts of the Plants. Hence are produc'd our *Manna's*, our *Honies*, and other gummous Exſudations of Vegetables: But the finer and lighter Parts are, with ſo much the greater Eaſe they are ſent up into the Atmoſphere; and thence are convey'd to our Organs of Smelling, by the Air we draw in by Reſpiration, and are either pleaſant or offenſive, beneficent or injurious to us, according to the Nature of the Plants from whence they ariſe.

And ſince theſe owe their *Riſe* to the *Water* which aſcends out of the Earth through the Bodies of Plants, we cannot be far to ſeek for the Cauſe why they are more numerous in the Air; and we find a greater Quantity of Odours exhaling from Vegetables, in warm, humid Seaſons, than in any other whatever.

Obſervation 3. *A great Part of the terreſtrial Matter, that is mixed with the Water, aſcends up into the Plant, as well as the Water.*

At the End of the Experiment, there was much more terreſtrial Matter in the Water of the Glaſſes F and G, that had no Plants in them, than in thoſe that had Plants. The Garden Mould in the Glaſſes K and L was conſiderably diminiſhed and carried off: Nay, the terreſtrial and vegetable Matter was born up in the Tubes fill'd with Sand, Cotton, &c. and in that Quantity, as to be evident even to the Senſe. And the Bodies in the Cavities of the other Tubes, which had their lower Ends immers'd in Water, wherein *Saffron*, *Cochineal*, &c. had been infus'd, were ting'd with *yellow*, *purple*, &c.

If it may be permitted to look abroad a while towards the Shores and Parts within the Verge of the Sea, there will be found a large Scene of Plants, that along with the *vegetable*, take up the meer mineral Matter alſo in great abundance; ſuch as *Sea-Purſlains*, the ſeveral Sorts of *Alga's*, *Samphires* and other marine Plants.

Theſe contain common Sea-Salt which is all one with the foſſile, in ſuch Plenty, as not only to be plainly diſtinguiſh'd on the Palate, but may be drawn forth from them in conſiderable Quantities. And ſome affirm, that there are Plants found that will yield *Nitre* and other *mineral Salts*.

As to vegetable Matter, it is manifeſt how apt and how much diſpos'd it is (being ſo very fine and light) to attend Water in all its Motions, and to follow it into each of its Receſſes, not only from thoſe Inſtances that have been alledg'd above, but from many others.

If you percolate it with all the Care imaginable, if you filter it with never ſo many Filtrations, yet there will remain ſome terreſtrial Matter: It is true, the fluid will be thinner every Time than other, and more diſengag'd from the ſame Matter, but never wholly free and clear. He ſays, he has filtred Water through ſeveral, wholly, free and clear Sheets of thick Paper, and after that through very cloſe and fine Cloth, twelve Times doubled, nay, has done this over and over again, and yet after all there was a conſiderable Quantity of this Matter diſcoverable in the Water.

Now, if it paſſes thus thro' Interſtices that are ſo very ſmall and fine, along with the Water, it is leſs ſtrange that it ſhould attend in its Paſſage thro' the *Ducts* and *Veſſels* of *Plants*.

It is true that filtering and diſtilling of Water does intercept and make it quit ſome of the earthy Matter it was before impregnated with; but then that which after this continues with the Water is fine and light, and conſequently ſuch as in a peculiar Manner is fit for the Growth and Nouriſhment of *Vegetables*; and this is the Caſe of *Rain-water*.

The Quantity of terreſtrial Matter that it bears up into the Atmoſphere is not great; but that which it does bear up is mainly of that light Kind, of vegetable Matter, and alſo that perfectly diſſolv'd, and reduced to ſingle Corpuſcles, all fitted to enter the Tubules and Veſſels of Plants; and upon this Account it is that *Rain-water* is ſo fertile and prolifick.

The Reaſon why, he ſays in this Propoſition, that only a great Part of the terreſtrial Matter, that is mixt with the Water, aſcends up with it into the Plant, is, becauſe all of it cannot.

The mineral matter is a great deal of it not only groſs and ponderous, but ſcabrous and inflexible, and ſo not diſpoſed to enter the Pores of the Roots; and a great many of the ſimple vegetable Particles do by Degrees unite and form ſome of them ſmall Clods or *Moleculæ*, ſuch as before mentioned in H, K and L, ſticking to the Extremities of the Roots of thoſe Plants.

Others of them intangle in a more looſe Manner, and form the *Nubeculæ*, and great Bodies, that are commonly obſerved in ſtagnant Water. When theſe are thus conjoin'd, they are too big to enter the Pores, which they might have done ſingly. Thoſe Perſons who are converſant in Agriculture will eaſily ſubmit to this.

They are well aware, that tho' their Earth be never ſo rich and good, and ſo fit for the Production of Corn and other Vegetables, yet unleſs the Parts of it be ſeparate and looſe, little will come of it.

It is therefore upon this Account that they beſtow the Pains they do in the Culture of it, plowing, harrowing, and breaking the clodded Lumps of Earth.

It is the ſame Way that *Sea-Salts*, *Nitre*, and other Salts promote Vegetation; and he ſays, he is ſorry that he cannot ſubſcribe to the Opinion of thoſe learned Gentlemen, who imagine that *Nitre* is eſſential to Plants, and that nothing is acted in the vegetable Kingdom without it.

For by all the Trials he has been able to make, the Thing is quite otherwiſe; and when contiguous to the Plant, it rather deſtroys it than otherwiſe.

But this *Nitre* and other *Salts* certainly do; they looſen the Earth, and ſeparate the concreted Parts of it; and by that Means fit and diſpoſe them to be aſſumed by the Water, and carried up into the Seed, or Plant, for its Formation and Augment.

There is no Body but muſt obſerve how apt all Sorts of *Soils* are to be wrought upon by Moiſture, how eaſily they liquate and run with it; and when theſe are drawn off, and have deſerted the Lumps wherewith they were incorporated, thoſe muſt moulder immediately and fall aſunder of Courſe.

The hardeſt Stone, if it happen, as it frequently does, to have any *Salt* intermix'd with the *Sand* of which it conſiſts, upon being expoſed to a humid Air, it in a ſhort Time diſſolves and crumbles all to pieces; and much more will clodded Earth and Clay, which is not near of ſo compact and ſolid a Conſtitution as Stone is.

The ſame Way likewiſe it is that Lime is ſerviceable in this Affair. The Husbandman ſays of it, that it does not fatten but only mellow the Ground. By which they mean, that it does not contain any Thing in it ſelf that is of the ſame Nature with the vegetable Mould, or afford any Matter fit for the Formation of Plants, but meerly ſoftens and relaxes the Earth, and by that Means renders it more capable of entring the Seeds and Vegetables ſet in it, in order to their Nouriſhment, than otherwiſe it would have been.

The Properties of Lime are well known and how apt it is to be put into a Ferment and Commotion by Water; nor can ſuch Commotion ever happen, when Lime is mix'd with Earth, however hard and clodded that may be, without opening and looſening of it.

Obſervation 4. *The Plant is more or leſs nouriſhed and augmented in Proportion, as the Water, in which it ſtands, contains a greater or ſmaller Quantity of proper terreſtrial Matter in it.*

The Truth of this Propoſition is ſo eminently diſcernable thro' the whole Proceſs of theſe Tryals, that, he thinks no doubt can be made of it.

The *Mint* in the Glaſs C, was much of the ſame Bulk and Weight with thoſe in A and B; but the Water in which that was being River Water, which was apparently more ſtored with terreſtrial Matter than the Spring or Rain-water, wherein they ſtood, were; it had thriven to almoſt double the Bulk, that either of them had, and with a leſs Expence of Water too.

So in like Manner the *Mint* in L, in whoſe Water a Quantity of good Garden Mould had been diſſolved, tho' it had the Diſadvantage to be leſs, when it was firſt ſet, than either of the *Mints* H or I, the Water of which was the very ſame with that in L, but had not any of the Earth mixed with it; yet in a ſhort Time the Plant not only overtook, but much outſtript all thoſe; and at the End of the Experiment was very conſiderably bigger and heavier than either of them.

Alſo the *Mint* in N, tho' it was leſs at firſt than that in M, being ſet in that *turbid*, *thick*, *feculent Water*, that remained behind after that wherein M was ſet, was diſtilled off, had in the End more than double its original Weight and Bulk, and receiv'd above twice the additional Increaſe, which that in M had done, which ſtood in the thinner diſtilled Water, and which is as conſiderable, had not drawn off half the Quantity of *Water* which that had.

The Reaſon why, in the Beginning of this Article he limits the Proportion of the Augment of the Plant to the Quantity of the proper terreſtrial Matter in the *Water*, is, becauſe all, even the vegetable Matter, to ſay nothing of the mineral, is not proper for the Nouriſhment of every Plant.

There may be, and doubtleſs there are, ſome Plants that are much alike in different Species of Plants, and ſo owe their Supply to the ſame common Matter; but it is plain, all cannot. And there are other Parts ſo differing, that it is no Ways credible, that they ſhould be formed all out of the ſame Sort of Corpuſcles; nay, it is ſo far from it, that there does not want good Indications, as will be ſeen by and by, that every Kind of Vegetable requires a peculiar and ſpecifick Matter for its Formation and Nouriſhment. Yea, each part of the ſame Vegetable does ſo; and there are very many and different Ingredients that go to the Compoſition of the ſame individual Plant.

If therefore the Soil, wherein any Vegetable or Seed is planted contains all, or moſt, of theſe Ingredients, and thoſe in due Quantity, it will grow and thrive there; otherwiſe it will not.

If there be not as many Sorts of Corpuſcles, as are requiſite, for the Conſtitution of the main and eſſential Parts of the Plant, it will not proſper at all. If there be theſe, and not ſufficient plenty, it will ſtarve and never arrive at its natural Stature; or if there be any the leſs neceſſary and eſſential Corpuſcles wanting, there will be ſome Failure in the Plant. It will be defective in *Taſte*, in *Smell*, in *Colour*, or ſome other Way.

But tho' a Tract of Land may happen not to contain Matter proper for the Conſtitution of ſome one particular Kind of Plant, yet it may for ſeveral others, and thoſe much differing among themſelves. The vegetative Particles are commixt and blended in the Earth, with all the Diverſity and Variety as well as all the uncertainty conceivable.

It is not poſſible to imagine how one *uniform*, *homogeneous* Matter, having all its Principles or organical Parts of all the ſame *Subſtance*, *Conſtitution*, *Magnitude*, *Figure* and *Gravity*, ſhould ever conſtitute Bodies ſo egregiouſly unlike, in all thoſe Reſpects as Vegetables of different Kinds are; nay, even as the different parts of the ſame Vegetable; that one ſhould carry a *reſinary*, another a *milky*, a third a *yellow*, a fourth a *red* Juice in its Veins; one afford a fragrant, another an offenſive Smell; one be ſweet to the Taſte, another *bitter*, *acid*, *acerb*, *auſtere*, *&c.* that one ſhould be *nouriſhing*, another *poiſonous*; one *purging* another *aſtringent*. In brief, that there ſhould be that Difference in them, in their ſeveral Conſtitutions, Makes, Properties and Effects, and yet all ariſe from the very ſame Sort of Matter, would be very ſtrange. And ſo note that by the By, this Augment makes equally ſtrong againſt thoſe, who ſuppoſe meer Water to be the Matter out of which all Bodies are formed.

The *Cataputia* in the Glaſs F, received but very little Encreaſe, only three Grains and an half, all the Time it ſtood, though two thouſand five hundred and one Grains of Water were ſpent upon it: He will not ſay, the Reaſon was, becauſe that Water does not contain in it Matter fit and proper for the nouriſhment of that peculiar and remarkable Plant. No, It may be the Water was not a proper Medium for it to grow in; and we know that there are very many Plants that will not thrive in it.

Probably too much of that Liquor in ſome Plants may hurry the terreſtrial Matter through their Veſſels too faſt for them to arreſt and lay hold of it; but let that be as it will, it is moſt certain, that there are peculiar *Soils* that ſuit particular Plants.

In *England*, *Cherries* are obſerv'd to ſucceed beſt in *Kent*, *Apples* in *Herefordſhire*, *Saffron* in *Cambridgeſhire*, *Wood* in two or three of our midland Counties, and *Teazles* in *Somerſetſhire*. This is an Obſervation that hath held in all Parts, and indeed in all Ages of the World.

But this is a further Proof of what he is here endeavouring to advance, that *Soil*, that is once proper and fit for the Production of ſome one Sort of Vegetable, does not ever continue to be ſo. No, in Tract of Time it loſes that Property, but ſooner in ſome Lands, and later in others. As for Example, If Wheat be ſown upon a Tract of Land that is proper for that Grain, the firſt Crop will ſucceed very well, and perhaps the ſecond and the third, as long as the Ground is in heart; but in a few Years it will produce no more, if ſowed with that Corn.

Some other Grain indeed it may, as *Barley*, and after this has been ſown ſo often that the Land can bring forth no more of the ſame, it may afterwards yield good *Oats*, and perhaps *Peas* after them, at length it will become barren; the vegetable Matter that it firſt abounded withal being reduced forth of it by thoſe ſucceſſive Crops, and moſt of it come off.

Each Sort of Grain takes forth that peculiar Matter that is proper for its own Nouriſhment. Firſt the *Wheat* draws off theſe Particles that ſuit the Body of that Plant, the reſt lying quiet and undiſturb'd the while; and when the Earth has yielded up all of them, thoſe that are proper for *Barley*, a different Grain, remain ſtill behind, till the ſucceſſive Crops of that Corn fetch them forth too; and ſo the *Oats* and *Peas*, in their Turn, till, in fine, all is carried off, and the Earth in great Meaſure is drained of that Sort of Matter.

After all which, that very Tract of Land may be brought to produce another Series of the ſame Vegetables, but never till it is ſupply'd with a new Fund of Matter, of the like Sort to that it at firſt contain'd.

This Supply is made ſeveral ways by the Ground's lying fallow for ſome Time, till the rain has poured down a freſh Stock upon it, or by the Tiller's Care in managing it. And for further Evidence that *this* Supply is in reality of ſuch Sort, we need only reflect a little while upon theſe Manures that are found by conſtant Experience beſt to promote Vegetation, and the Fruitfulneſs of the Earth.

Theſe are either Parts of *Vegetables*, or of *Animals*, which indeed either derive their own Nouriſhment immediately from vegetable Bodies, or from other Animals that do ſo. In particular the *Blood*, *Urine* and *Excrements* of *Animals*, Shavings of *Horn* and of *Hoofs*, *Hair*, *Wool*, *Feathers*, calcin'd *Shells*, *Lees* of *Wine* and of *Beer*, *Aſhes* of all Sorts of vegetable Bodies, *Leaves*, *Straw*, *Roots* and *Stubble*, turn'd into the Earth by plowing, or otherwiſe, to rot and diſſolve there. Theſe are our beſt Manures; and being vegetable Subſtances, when refunded back again into the Earth, ſerve for the Formation of other like Bodies.

Not wholly to confine ourſelves to the Fields let us look a while into our Gardens, and there we ſhall meet with ſtill farther Confirmations of the ſame Thing.

The *Trees*, *Shrubs* and *Herbs*, cultivated in theſe, after they have continued in one Station, till they have derived thence the greateſt Part of the Matter fit for their Augment, will decay and degenerate, unleſs either freſh Earth or ſome fit Manure be apply'd to them.

It is true, they maintain themſelves there for ſome Time by ſending forth Roots farther and farther to a great Extent all round to fetch in more remote Proviſions; but at laſt, all will fail, and they muſt either have a freſh Supply brought to them, or they themſelves be remov'd and tranſplanted to ſome Place better furniſhed with Matter for their Subſiſtence: And accordingly, Gardeners obſerve, that Plants that have ſtood a great while in a Place, have longer Roots than uſual; Part of which they cut off, when they tranſplant them to a freſh Soil, as now not of any farther Uſe to them.

All theſe Inſtances (to paſs over a great many others that might be alledg'd) point forth a particular terreſtrial Matter, and not Water, for the Subject to which Plants owe their Increaſe.

Were it Water only, there would be no Need of Manures, or of Tranſplanting them from Place to Place. The Rain falls in all Places alike; in this Field and in that indifferently; on one Side of an Orchard or Garden, as well as on another: Nor could there be any Reaſon, why a Tract of Land ſhould yield *Wheat* one Year, and not the next; ſince the Rain ſhowers down alike in each.

Obſervation 5. *Vegetables are not formed of Water, but of a certain peculiar* terreſtrial Matter.

It has been already ſhewn, that there is a conſiderable Quantity of this Matter contained both in *Rain*, and *Spring* and *River-Water*: That the much greateſt Part of the Fluid Maſs, that aſcends up into Plants, does not ſettle or abide there, but paſſes thro' the Pores of them, and aſcends up into the Atmoſphere. That a great Part of the *terreſtrial Matter*, mixed with the *Water*, paſſes up into the Plant along with it; and that the Plant is more or leſs augmented in Proportion, as the *Water* contains a greater or ſmaller Quantity of that Matter.

From all which, it may very reaſonably be inferr'd, That *Earth*, and not *Water*, is that which conſtitutes Vegetables.

The Plant E, drew up into it two thouſand five hundred and one Grains of fluid Maſs; and yet, from all that, had receiv'd but three and a half Increaſe.

The *Mint* in L, tho' it had, at firſt, the Diſadvantage to be much leſs than that in I, yet being ſet in Water, in which Earth had been mixed plentifully, and that in I, only in Water, without any additional Earth, it had vaſtly outgrown the other, weighing at leaſt one hundred and forty five Grains more than that did, ſo having gain'd above twice as much as that had.

In like Manner that in K, tho' it was a great deal leſs when put in, than that in I, and alſo was impair'd and offended by Inſects; yet being planted in Water, wherein Earth was diſſolved, whereas the Water in which I had ſtood had none, it not only overtook, but conſiderably ſurpaſs'd the other, weighing at leaſt twenty nine Grains more than that in I, and yet had not expended ſo much Water as that, by above two thouſand four hundred Grains.

The Plant N, tho' at firſt a great deal leſs than that in M; yet being ſet in the foul, Craſs-Water that was left in the Still, after that in which M was ſet, was drawn off, in Concluſion had gain'd in Weight above double what that in the finer and thinner Water had.

The Proportion of the Augment of that Plant that throve moſt, was to the fluid Maſs that was ſpent upon it, but as one to forty ſix. In others it was but as one to ſixty, a hundred, two hundred; nay in the *Cataputia* it was but as one to ſeven hundred and fourteen.

The *Mint* in B, took up thirty nine Grains of Water a Day, one Day with another, which was much more than the whole Weight of the Plant originally; and yet for all this, it gain'd not more than one fourth of a Grain one Day in Weight.

Nay, that in H, took up two hundred fifty three Grains a Day of the Fluid, which was near twice as much as its original Weight, it weighing when firſt ſet in the Water, but one hundred twenty ſeven Grains, and after all, the daily Increaſe of the Plant was no more than two $\frac{41}{56}$ Grains.

Obſervation 6. Spring *and* Rain-water *contain pretty near an equal Charge of vegetable Matter*; River-water *more than either of them.*

The Plants in the Glaſſes A, B, C, were at firſt of much the ſame Size and Weight: At the End of the Experiment, the *Mint* in A had gained fifteen Grains out of two thouſand five hundred fifty eight Grains of *Spring-Water*.

That in B, had gather'd ſeventeen Grains and a half, out of three thouſand four hundred Grains of *Rain-Water*: But that in C, had got twenty ſix Grains out of only two thouſand four hundred ninety three Grains of *River-Water*.

He does not found this Propoſition ſolely upon theſe Tryals; having made ſome more, which are not related here, that agree well enough with theſe.

So that the Proportions, here delivered, will hold for the Main; but a ſtrict and juſt Compariſon is hardly to be expected. So far from it, that he makes no Doubt, but that the Water that falls in Rain, at ſome Times, contains a greater Share of terreſtrial Matter, than that which falls at others.

A more powerful and intenſe Heat muſt needs hurry up a larger Quantity of that Matter along with the humid Vapours that form Rain, than one more feeble and remiſs ever poſſibly can. The Water of one Spring may flow forth with an higher Charge of this Matter, than that of another: This depending partly upon the Quickneſs of the Ebullition of the Water; and partly upon the Quantity of that Matter, latent in the *Strata* thro' which the Fluid paſſes: For the ſame Reaſon, the Water of one River may abound with it more than that of another; Nay the ſame River, when much agitated and in Commotion, muſt bear up more of it, than when it moves with leſs Rapidity and Violence.

That there is a great Quantity of this Matter in Rivers, and that it contributes vaſtly to the Fertility of the Earth, we have an illuſtrious Inſtance in the *Nile*, the *Ganges*, and other Rivers that yearly overflow the neighbouring Plains. Their Banks ſhew the faireſt and largeſt Crops of any in the whole World. They are even loaded with the Multitude of their Productions: And thoſe who have not ſeen them, will hardly be induc'd to believe the mighty Returns thoſe Tracts make, in Compariſon of others that have not the Benefit of like Inundations.

Obſervation 7. *Water ſerves only for a Vehicle to the terreſtrial Matter which forms Vegetables, and does not it ſelf make any Addition unto them.*

Where the proper *terreſtrial Matter* is wanting, the Plant is not augmented, tho' never ſo much Water aſcend into it. The *Cataputia* in E took up more Water than the *Mint* in G, and yet had grown but very little, having received only three Grains and an half of additional Weight; whereas the other had received no leſs than twenty ſix Grains.

The *Mint* in I was planted in the ſame ſort of Water as that in K was, only the latter had Earth diſſolved in the Water; and yet that drew off thirteen thouſand one hundred and forty Grains of Water, gaining it ſelf no more than one hundred thirty nine Grains in Weight. Whereas the other took up ten thouſand ſeven hundred thirty one Grains of Water, and was augmented one hundred ſixty eight Grains in Weight. Conſequently that ſpent two thouſand four hundred and nine Grains more of the Water than this in K did, and yet was not ſo much increaſed in Weight as this by twenty nine Grains.

The *Mint in* M ſtood in the very ſame Kind of Water as that in N did; but the Water in M having much leſs *terreſtrial Matter* in it than that in N, the Plant bore up eight thouſand eight hundred and three Grains of it, gaining it ſelf only forty one Grains all the while: whereas that in N drew off no more than four thouſand three hundred forty four Grains, and yet was augmented 94 Grains. So that it ſpent four hundred forty five Grains of Water more than that did; and yet was not it ſelf ſo much increas'd in Weight, as that was by fifty three Grains. This is both a very fair and a very concluſive Inſtance.

It is evident therefore, *Water* is not the Matter that compoſes *vegetable Bodies*; 'tis only the Agent that conveys that Matter to them; that introduces and diſtributes it to their ſeveral Parts for their Nouriſhment.

That *Matter* is ſluggiſh and inactive, and would lie eternally confin'd to its Bed of Earth, without ever advancing up into Plants, did not *Water*, or ſome like Inſtrument, fetch it forth, and carry it into them.

That therefore there is that plentiful Proviſion, and vaſt abundance of it ſupplied to all Parts of the Earth, is a Mark of natural Providence, ſuperintending over the Globe we inhabit; and ordaining a due Diſpenſation of that Fluid, without the Miniſtry of which, the noble Succeſſion of Bodies we behold, *Animals*, *Vegetables* and *Minerals* would be at a Stand.

But to keep to Plants: It is manifeſt, *Water*, as well upon this, as the other Hypotheſis, is abſolutely neceſſary in the Affair of Vegetation, and it will not ſucceed without it: Which indeed gave Occaſion to the Opinion, that *Water* it ſelf nouriſhed, and was changed into vegetable Bodies. They ſaw, that tho' theſe were planted in a Soil never ſo rich, ſo happy, ſo advantageous, nothing came of it, unleſs there was *Water* too in conſiderable Quantity. And it muſt be allow'd, that *Vegetables* will not come on or proſper, where that is wanting: But yet, what thoſe Gentlemen inferr'd thence, was not, we ſee, well grounded.

This Fluid is capacitated for the Office here aſſign'd it, ſeveral Ways. By the Figure of its Parts, which (as appears from many Experiments) is exactly and mathematically Spherical; their Surfaces being perfectly polite, and without any, the leaſt Inequalities.

It is evident, that *Corpuſcles* of ſuch a Figure are eaſiy ſuſceptible of Motion, yea, far above any others whatſoever; and conſequently, the moſt capable of moving and conveying other Matter that is not ſo active and voluble.

Then the Intervals of Bodies of that Figure are, with Reſpect to their Bulk, of all others the largeſt; and ſo the moſt fitted to receive and entertain foreign Matter in them.

Beſides, as far as the Tryals hitherto made, inform us, the conſtituent Corpuſcles of Water are each ſingly conſidered abſolutely ſolid, and do not yield to the greateſt external Force. This ſecures their Figure againſt any Alteration: And the Intervals of the Corpuſcles muſt be always alike. By the latter, it will be ever diſpoſed to receive Matter into it; and by the former, when once received, to bear it on along with it.

Water is farther capacitated to be a Vehicle to this Matter, by the Tenuity and Fineneſs of the Corpuſcles of which it conſiſts. We hardly know any Fluid in all Nature, except Fire, whoſe conſtituent Parts are ſo exceeding *ſubtile* and *ſmall*, as thoſe of Water are. They will paſs Pores and Interſtices that neither Air nor any other Fluid will. This enables them to enter the fineſt Tubes and Veſſels of Plants, and to introduce the terreſtrial Matter, conveying it to all Parts of them; whilſt each, by Means of Organs 'tis endow'd with for that Purpoſe, intercepts and aſſumes into itſelf ſuch Particles as are ſuitable to its own Nature; letting the reſt paſs thro' the common Ducts.

Nay, we have almoſt every where mechanical Inſtances of much the ſame Tenor. It is obvious to every one, how eaſily and ſuddenly Humidity or the Corpuſcles of Water, ſuſtained in the Air, pervade and inſinuate themſelves into *Cords*, however tightly twiſted, into *Leather*, *Parchment*, *vegetable Bodies*, *Woods*, and the like.

This is that which fits them for *Hydrometers*, and to meaſure and determine the different Quantities of Moiſture in the *Air*, in different Places and Seaſons. How freely Water paſſes and carries with it terreſtrial Matter, thro' Filtres, Colatures, Diſtillations, &c. hath been intimated already.

Obſervation 8. *Water is not capable of performing this Office to Plants, unleſs aſſiſted by a due Quantity of Heat; and this muſt concur, or Vegetation will not ſucceed.*

The Plants that were ſet in the Glaſſes Q, R, S, &c. in *October*, and the following colder Months, had not near the Quantity of Water ſent up into them, or ſo great an additional Increaſe by much, as thoſe that were ſet in *June*, *July* and the hotter.

It is plain, that Water has no Power of moving it ſelf, or riſing to the vaſt Height it does, in the more tall and lofty Plants; ſo far from this, that it does not appear from any Diſcovery yet made, that even its own Fluidity conſiſts in the inteſtine Motion of its Parts; whatever ſome, otherwiſe very learned and knowing Perſons, may have thought.

There is no Need of any Thing more, for ſolving all the *Phænomena* of Fluidity, than ſuch a Figure and Diſpoſition of the Parts as Water has. Corpuſcles of that Make, and that are all abſolutely ſphærical, muſt ſtand ſo very tickly and nicely upon each other, as to be ſuſceptible of every Impreſſion; and tho' not perpetually in Motion, yet muſt be ever ready and liable to be put into it, by any the ſlighteſt Force imaginable.

It is true, the Parts of *Fire* or *Heat* are not capable of moving themſelves, any more than thoſe of Water; but they are more ſubtile, light and active than thoſe are, and ſo more eaſily put into Motion.

In fine, it is evident, and Matter of Fact, that Heat does operate upon and move the Water, in Order to its carrying on the Work of Vegetation: But how it is agitated in it ſelf, and where the Motion firſt begins, this is no fit Place to enquire.

That the Concourſe of Heat in this Work is really neceſſary, appears not only from the Experiments before us, but from all Nature; from our Fields and Foreſts, our Gardens and Orchards.

We ſee in *Autumn*, as the Sun's Power grows gradually leſs, ſo its Effect on Plants is remitted, and their Vegetation ſlackens by little and little. Its Failure is firſt diſcernable in Trees. Theſe are rais'd higheſt above the Earth, and require a more intenſe Heat to elevate the Water, charged with their Nouriſhment, to the Tops and Extremities of them; ſo that, for Want of freſh Support and Nutriment, they ſhed their Leaves, unleſs ſecur'd by a very firm and hardy Conſtitution indeed; as our *Ever-greens* are. Next, the Shrubs part with theirs; and then the Herbs and lower Tribes, the Heat being at length not ſufficient to ſupply even theſe, tho' ſo near the Earth, the Fund of their Nouriſhment.

As the Heat returns in the ſucceeding *Spring*, they all recruit again; and are furniſhed with freſh Supplies and Verdure. But firſt thoſe that are loweſt and neareſt the Earth, *Herbs*, and they that require a leſs Degree of Heat, to raiſe the Water with its earthy Charge into them. Then the *Shrubs* and higher Vegetables, in their Turns; and laſtly, the *Trees*.

As the Heat increaſes, it grows too powerful, and hurries the Matter with too great Rapidity, thro' the finer and more tender Plants. Theſe therefore go off and decay; and others that are more hardy and vigorous, and require a greater Share of Heat, ſucceed in their Order. By which Mechaniſm, provident Nature furniſhes us with a very various and different Entertainment, and what is beſt ſuited to each Seaſon.

As the *Heat* of the ſeveral Seaſons affords us a different *Face of* Things; ſo the ſeveral *diſtant* Climates ſhew their ſeveral Scenes of Nature and Productions of the Earth.

The hotter Countries yield ordinarily the largeſt and talleſt *Trees*, and thoſe too in much greater Variety than the colder ever do.

Even thoſe Plants which are common to both, attain to a much greater Bulk in the *Southern* than in the *Northern* Climes.

Nay, there are ſome Regions ſo bleak and chill, that they raiſe no Vegetables at all, to any conſiderable Size. This we learn from *Groenland*, *Iceland*, and other Places of the like cold Site and Condition. In theſe, no Tree ever appears; and the very Shrubs they afford, are few, little, and low.

I might have followed this learned and ingenious Author farther; but theſe Things being the moſt material, as to the Properties of Water, in the Buſineſs of Vegetation; and which are proper to extend the ingenious Thoughts more univerſally among the Lovers of Horticulture, which at preſent are wanting among Gardeners; I ſhall not proceed any farther here, but recommend thoſe that require further Satisfaction, to the Treatiſe it ſelf.

7. WATERING.

MANY Plants would ſuffer if they were not carefully watered at their firſt removal, or in extreme dry Seaſons, therefore it ſhould not be neglected early in the Spring; but you ſhould be cautious of watering the

Leaves of young and tender Plants while the Weather is cold, and only wet the Earth that is about them.

As for thoſe *Plants*, or *Seeds*, that are more hardy, when the Nights are cold, water in the Forenoon; but if the Days be hot, and the Nights warm, the Evening is the beſt Time.

Water that comes out of Wells, or deep Pits, ſhould ſtand for a Day, in an open Veſſel in the Sun, before you water tender Plants with it in the Spring.

But Pond, River or Rain-water, is better than Well or Spring Water, and needs not to ſtand in the Sun.

If the Dung of Pigeons, Sheep or Hens; or Aſhes, Lime or any fat Soil, be infus'd in the Water in Ciſterns, or other Veſſels, it will much add to the Growing of Plants if they be continually watered with it.

No Plants ſhould be watered too much, leſt the Water carry away with it the vegetative, or fertile Salts, and ſo impoveriſh the Ground and chill the Plants.

But it is better to water a Plant throughly and ſeldom, than often and ſparingly, for ſparing and ſhallow watering is but a deluding the Plant, and cauſes it to root ſhallower than otherwiſe it would, and ſo render it more liable to be injured by the Severity of the Weather.

Slips, or Cuttings of Herbs, or Plants, ought to be planted in moiſt Ground from *Auguſt* to the End of *April*, and be frequently watered and ſeparated at a Knot, Joint, or Bur, or two or three Inches beneath it, and moſt of the Leaves ſhould be ſtripp'd off before they are planted, and no ſide Branches ſhould be left on; ſome ſlit the End where it is cut off, and ſome twiſt it. All Plants muſt ſtand two Years, at leaſt, before they are fit to remove.

If you would have the Ground always moiſt about a Plant, you may place a Veſſel of Water near it, and put a Piece of woollen Cloth or Liſt into it, and let one End of it hang out of the Veſſel to the Ground, and the other be in the Water, after the Manner of a Crane, having firſt wetted the Liſt or Cloth, and the Water will keep continually dropping, till it is all gone out of the Veſſel: But the End that hangs without the Veſſel muſt be always lower than the Water in the Veſſel, or elſe it will not ſucceed, and if it does not drop faſt enough, you may augment your Liſt or Cloth, and if it drops too faſt you may make it leſs.

When any Sort of Seeds have been ſown, though the Ground be never ſo dry, they ſhould not be watered till they have been forty eight Hours in the Ground, and the Ground is a little ſettled about them, that they may be a little glutted with the natural Juice of the Earth, leſt by too much Water coming on them at once they ſhould burſt. If the Ground be very dry when you ſow the Seed you may ſow it the deeper.

8. WATER-PLANTS.

MR. *Bradley* tells us, that as the beautiful Flowers of ſome of the Water-Plants do at leaſt equal, if not ſurpaſs many of our moſt curious Land Plants, and eſpecially thoſe in the *Wilderneſs*; he is perſuaded many curious Perſons would have made Plantations of them, if they had known how to have done it: But tho' *America* exceeds us, yet we are not without them in *England*, as the *Water Lilies* and *Ranunculus's* of ſeveral Kinds, that are ſo frequently found in our Rivers and Ponds, and eſpecially in *Cambridgeſhire* where there is a great Variety.

Water-Plants may be cultivated in Gardens, altho' there are neither *Ponds*, *Rivers* or *Springs* in them; And he recommends the doing of it in the Method following.

1. Either in Garden-pots glazed, without Holes, or in Troughs or Caſes of Wood of oaken Boards two Inches thick, ſix Foot long, and two Foot wide, and two Foot and an half deep; if they are for large Plants that grow under Water, the Troughs need not be ſo deep. The Corners of theſe Troughs ſhould be ſtrengthened with Iron, and the Inſide ſhould be well pitched, and the Outſide painted.

Theſe Pots or Troughs ſhould be filled one third part with common unmixed Earth for *Water Lilies*, or *Pond Weeds*, or ſuch as require Depth of Water for their Leaves to ſwim in.

And for *Water Arrows*, *Water Plantane* and *Ranunculus's*, which have not ſo much Depth of Water as the former, they may be filled two thirds with the ſame Earth.

And as for thoſe *Water-plants* that grow in Bogs and Marſhes, the Pots or Troughs may be fill'd with the Earth, to within five Inches of the Top.

This may be perform'd in *April*, when the Water-plants begin to appear, which may be planted from that Time 'till the Middle of *June*; and the Veſſels may be fill'd with Water as ſoon as the Plants are put into them.

It ought alſo to be obſerv'd, That many of the Water-Plants are *Erraticks*, ſwimming about from Place to Place, as the Wind carries them, taking no Root in the Earth, only ſtriking their Roots into the Water; as, *Duck-meat*, *Frog-bits*, and *Water-Soldiers*: A ſmall Quantity of Earth in the Bottoms of the Pots or Caſes, will be ſufficient to maintain the Water in a right State for the Support of theſe.

And indeed, the beſt Way to underſtand the right Method of Cultivating them in Gardens, will be, to obſerve the Mode of Growth, and the Expoſure of thoſe Plants that we would civilize in our Gardens. For the plain Road of Nature ſhould be always followed, or at leaſt kept in View, in Order to obtain healthful Plants.

In thus artificially Cultivating *Water-Plants*, it is his Opinion, that thoſe that naturally grow in

Rivers ſhould be frequently refreſh'd with Spring-Water: But ſuch as delight to grow in ſtanding Pools or Ponds, ſhould be ſeldom interrupted with it.

It may alſo be obſerv'd, that *Water-Plants*, when they are remov'd, are as long before they recover themſelves, to renew their Growth, as Land-Plants are. And whereas it is an uſual Thing to ſhelter Land-Plants from the Heat of the Sun, after they have been tranſplanted, *Water-Plants* muſt be treated quite contrary, and muſt be expos'd to the Sun, after their Removal.

The *Seeds* of *Water-Plants* are of two Kinds; the one Kind ſwimming on the Top of the the Water, and the other ſinking to the Bottom as ſoon as it is ſhed; following the Nature of their Mother-Plants in that Reſpect: For if the Seeds of ſuch Plants which naturally ſwim on the Top of the Water, ſhould ſink to the Bottom, thoſe *Seeds* would not be in the proper Station which is requir'd for their Growth; and ſo of Conſequence would periſh: And ſo on the other Hand, the *Seeds* of ſuch Plants, which naturally grow under Water, will not ſwim on the Top of it.

It may alſo be obſerv'd, that in our Climate no one *Water-Plant* is an Ever-green; but all of them are either *vivacious* or *annual*, and either loſe their Leaves down to their Roots, or intirely periſh, excepting only their Seeds; for it is impoſſible that they ſhould live and grow in frozen Waters.

Therefore, in Order to preſerve their *Seeds*, that we may be ſupply'd with the ſeveral Kinds from Year to Year; the Plants are to be follow'd from the Flower 'till they are ripe, and then they ſhould be put into Earth and Water, to preſerve them fit for Vegetation the next Spring; for that is the Way that Nature takes, and there is no Difficulty of doing this in Pots, *&c.*

They may be put into the Pots or Troughs as ſoon as they are gathered, and may there either ſink or ſwim according to their Nature, 'till the Spring cauſes them to ſprout; and they will proſper, and require but a very little Attendance.

He adds, that he does not doubt but that the *Seeds* of *Water-Plants* will produce as many Varieties as the *Seeds* of *Land-Plants* every Year.

As to *Exotick Water-Plants*, he is of Opinion, that they are beſt to be procur'd and brought hither in the *Seeds*; and whereas in *America* the Waters are generally adorn'd with beautiful Plants; if they were procur'd by ſome ingenious Correſpondent in thoſe Parts, they may be put (each Sort by it ſelf) into Bottles of Water and Earth, with large Mouths, and only be covered with a Linnen-Cloth; for if they were ſtopp'd with Corks, the Liquor would be apt to ferment: And theſe Bottles might be put into a Veſſel of Water, and ſo be brought to us; and when we receive them, they ſhould be ſown in the Pots, as directed before, and ſet into Hot-beds, 'till the Weather in *England* comes to anſwer the Heat of the Climate they came from.

When the *Seeds* are gathered, the Perſon who does it ſhould curiouſly obſerve the Depth of the Water they grow in, the Quality of the Soil under the Water, the Situation, and whether it is ſtanding or running Water they grow in; and above all, the Taſte of the Water, whether it be freſh, or ſalt, or brackiſh.

When we have made a good Collection of Varieties of *Water Plants*, they may be diſpos'd into *Claſſes*, and the ſeveral Tribes rang'd in their proper Order, which would be of Uſe to ſuch as read Lectures on Plants: And for Want of this, is the Occaſion that *Water-Plants* are ſo little known.

He accounts the moſt proper Seaſon for Diſpoſing and Removing them, is as ſoon as they are out of Flower, and the Leaves begin to decay, which is about the Beginning of *September*. The Stems or Branches of them ſhould then be cut off near the Root; and their Roots ſhould be planted at due Diſtances in the Pots or Troughs, as before directed. See *Water-Lily*, under the Article *Lily*.

He adds, that thoſe *Water-Plants* which come from foreign Parts, muſt be ſhelter'd in a Green-houſe, during the Winter; for if they, like the *Exotick Land-Plants*, ſo far preſerve their *natural* Seaſon of Growth, that they will only ſprout in the *Spring*-Time of their native Countries; they will ſome of them flower with us in the Winter Seaſon, And while they are in the Green-houſe, they ſhould be frequently refreſh'd with Water, ſomewhat warm'd with the Heat of Horſe-Dung or the Sun, and be allow'd as much Air as poſſible.

8. WAX.

MR. *Bradley* tells us, That both *Wax* and *Honey*, rightly prepar'd by the *Bees*, muſt be of Uſe to the Vegetables; either the *Wax* to be laid to the *Roots*, or the *Roots* to be anointed with the *Honey*, or both together made up into a Paſte; and that this will promote Vegetation.

The Reaſon he gives is, That the *Wax* made by *Bees*, is made of the enlivening Parts of a Plant, *i. e.* the *male Duſt* and the *Honey* is collected from an eſſential Dew, which is always found in or about the female Parts of Flowers. And therefore, it is but reaſonable to conclude that thoſe Bodies, either apart or together, are apt to help the Growth of Plants, if rightly apply'd.

If *Honey* be apply'd to the *Roots* of Plants, it will anſwer one of the Ends that *Soap* will do, *viz.* it will keep the Roots from being ſhrunk by the Air, 'till the Earth is well ſettled about them. And he is of Opinion, that a Plant anointed with it, will gain a great Benefit by it: For tho' *Honey* is taken from the moſt finiſhed Parts of a Plant, yet (as you will find elſewhere) the extreme Parts of the Roots may be made to become Branches, and the extreme Branches to act as Roots.

He adds, That as it is certain that it is helpful to the perfecting of the Seed, and (as he believes) fills the Lobes of every Seed with nutrimental Juices, for the Subſiſtence of the Embryo of a Plant, in the Seed; ſo it may very well be ſuppos'd that *Honey* muſt aſſiſt the Growth of a Plant.

But then he propoſes it to be conſidered, whether or no every Sort of Honey will do for that Purpoſe; for that if it be by the *Bees* gathered from the Flowers of *Beans*, *Broom*, *Furz*, *Heath*, *Peaſe*, or Garden Flowers, it is queſtionable whether it will be alike uſeful to every Sort of Tree.

But he is of Opinion, That if the Country about, were nicely examined, as to what chiefly is in Flower, and from thence a Judgment were made, from what Sort of Plant the *Wax* or *Honey* were made, they would chiefly be of Uſe to promote the Vegetation of the ſame Kinds, rather than of others.

Not but that he is of Opinion, they would be a great Help to any Sort of Plants, as to inriching their Growth, as they depend upon the natural Princiles of Vegetation, which are generally the ſame.

But probably, That which is gathered from *Tulips* would be moſt ſerviceable to *Tulips*, and that from *Beans* to *Beans*, that from *Peas* to *Peas*, and ſo on.

But however, this *Honey* did differ from Trees according to the Plants it was gathered from, yet there can be nothing in it diſagreeable to Vegetation. And therefore he does not doubt, but that if the *Wax* made at the Time when either the *Cheſnut*, the *Oak*, or other Trees were in Flower, the *Wax* or *Honey* would be ſovereign, if the *Seeds* or *Maſt* of the ſame Trees were incloſed in it, when they were put into the Ground.

Becauſe the *Wax* has in it the Subſtance of the male Spirit, by which that Seed was firſt endued with the Spirit of Vegetation; and the *Honey* partakes of that Dew which is found in the female Flowers, which was eſſential to the Growth of the *Plantula* in that Seed.

9. Grafting Wax.

MR. *Mortimer* for *Cleft Grafting*, *Whip Grafting*, and *Grafting* by *Approach*, recommends *tempered Clay*, or *ſoft Wax*, but for *Rind Grafting*, *Clay* and *Horſe Dung*.

Dr. *Agricola* ſays, that Country Gardeners inſtead of *Grafting Wax* only uſe *Clay*, which they lay over a piece of Linen-Cloth and ſo keep it always moiſt; and to prevent its cracking with the Heat of the Sun, they tie Moſs over it with Baſs.

But his Gardener made his *Grafting Wax* as follows: Half a Pound of Pitch, a Quarter of a Pound of Wax, and half an Ounce of Oil of Almonds, which being melted and mixed together, he made up into long Roles; and if he made it in *Spring* or *Autumn*, he put in a moderate Quantity of Turpentine.

With this he covered the Cleft, put a double Paper or Linen over the Top of the Tree, then tied it with Baſs, or ſmall light Oſier, but not too hard, eſpecially on Stone Fruit Trees, and a narrow Slip of Bark on each Side of the Cleft, to prevent the great preſſure.

He ſays, he made that he calls his *noble Grafting Wax*, for the Roots of Trees as follows: He took two Pounds of pure *Pitch*, ſuch as is called at *Ratisbon*, *Virgin Pitch*; to this he added half a pound of good *Turpentine*; and put them together into an earthen Pot, and ſet them over the Fire, that the volatile part of the *Turpentine* might evaporate, becauſe it would otherwiſe be very prejudicial to Trees and Roots, and to know when it was enough he poured a little of it on a Pewter Plate, and if it did coagulate preſently, it was enough. Then he added to it half a Pound of *Virgin Wax*, and half an Ounce of pounded *Myrrh* and *Aloes*. When theſe were well mixed he made it up into little Rolls, or elſe Plaſters, that is, dipt Linen Rags into it, or elſe kept it in Galli-pots. See *Mummy*

13. WEATHER.

THE Knowledge of the Wea- is of great ſervice in Gardening and Agriculture; but the imaginary Prognoſtications of Almanack Writers, has been found to be but a meer deluſive Cant and Jargon.

More certain Signs and *Prognoſticks* of good and bad Weather may be collected from thoſe things that are nearer to us than the Orbs of the Planets. Nor need we go any farther than this our own ſublunary World, for the moſt probable Conjectures, in relation to the Weather, and may deduce our Prognoſtications, in relation thereto, from *Animals* and *Vegetables*, &c.

Therefore thoſe who have applied themſelves to the Obſervations of the Signs and Prognoſticks of *good* or *bad* Weather have laid down theſe following Rules.

Animals that live in the open Air, muſt neceſſarily be ſuppoſed to have a quicker Senſe of it, than Men that live within Doors, and eſpecially the airy Inhabitants, the *Birds*, who live in the freeſt and cleareſt Air, and are more apt, by their Flight and other Motions, as well as their Voices to diſcover their Senſations of it.

Signs, or Prognoſtications of rainy Weather.

The Lord *Bacon* ſays, that *Water Fowls*, ſuch as *Sea-Galls*, *Moor-Hens*, &c. when they flock and fly together from the Sea towards the Shore, foretel Rain and Wind.

And on the other Hand, when *Land Birds*, ſuch as *Crows*, *Swallows*, *&c.* fly from Land to the Waters, and beat the Waters with their Wings, it betokens Rain and Wind.

The natural Reaſon of this ſeems to be, the Pleaſure that both Land and Water Fowl take in the Moiſtneſs and Denſity of the Air, and ſo love to be in Motion and upon the Wing.

It is no ſtrange Thing, that *Water Fowls* delight in that Air, which is moſt like *Water*, their natural Element; and that *Land-Fowl* alſo (many of them) delight in Bathing and moiſt Air.

And alſo for the ſame Reaſon, many Birds prune their Feathers, *Geeſe* gaggle, and the *Crows* call for Rain; all which ſeems to be but the Pleaſure they take in the Relaxation of the Air.

The *Heron*, which is a Water Fowl, delights in a condenſed Air; and beſides, being a Fowl of a heavy Wing, requires the aſſiſtance of the groſſer Air, and therefore when the Air is groſs and thickens into Showers, ſhe flies low,

When *Crows* flock together, in large Flights, and hold their Heads upwards as they flie, and cry louder than they uſually do, it is a Sign of Rain; and when they walk ſtalking by Rivers and Ponds, it is the ſame.

When *Swallows* chatter and fly low about Lakes and Ponds (which they do in order to catch Flies; for the Air being clogged with vapours hinders Flies from aſcending) it beſpeaks Rain.

When *Peacocks* cry much; when *Birds* that uſually perch upon Trees, fly to their Neſts, when *Fowls* pick up their Feathers with their Bills, when Cocks crow before their uſual Hour, and Hens creep in Cluſters into the Duſt, they are Signs of rainy Weather.

Not only *Birds* but *Beaſts* do give notice of *Rain*; as *Sheep*, when they leap mightily, and puſh at one another with their Heads, it denotes Rain.

When *Aſſes* bray or ſhake their Ears, or are annoyed with Flies; when *Deers* fight, when *Foxes* and *Wolves* howl mightily; when *Hogs* at play break or ſcatter their Food, and *Oxen* that are tied together, raiſe their Heads, and lick their Snouts, it is a Sign of Rain.

When *Cattle* leave off feeding and make haſte to ſhelter under Buſhes and Hedges, *&c.* when *Cats* rub their Heads with their fore Paws (eſpecially that Part of their Heads which is above their Ears, and lick their Bodies with their Tongues, it is a Sign of Rain.

Beaſts do generally delight in a moiſt Air, and it cauſes them to eat their Meat the better; *Cattle*, *Deer* and *Rabbets* will feed heartily before *Rain*; *Heifers* will put up their Noſes, and ſnuff in the Air againſt Rain. *Sheep* will riſe early in a Morning to feed againſt Rain.

Alſo *Fiſhes*, either Sea or River *Fiſh*, do often by their playing towards the Top of the Water foretell Rain: For this the Lord *Bacon* gives this Reaſon, that when the Weather is dry, the *Fiſh* love to keep as much as they can from the Air, and ſwim lower, and will not come near the Air, till it is moiſt.

Inſects and *Reptiles* do alſo give prognoſticks of Rain.

Ants quit their Labour, and hide themſelves in the Ground, againſt Rain; for theſe provident *Inſects*, by a ſecret Inſtinct in Nature, carry their Eggs to a Place of drier Security, when they find the Air changed into Moiſtneſs and clogged with Vapours.

Bees, when Rain is coming on, do not ſtir from their Hives, or at leaſt not very far.

Fleas bite more againſt Rain, and *Flies* are very troubleſome often daſhing againſt Perſons Faces. *Moles* will caſt up more Earth; and *Earth-Worms* will creep out of the Ground againſt Rains.

Even the Bodies of Men and Women give Tokens of Rain or Froſt, even by Aches, Corns and Wounds, which will be more troubleſome againſt ſuch Seaſons: for Rain makes the Humours of the Body to abound more, and Froſt makes them ſharper.

Mr. *Ozanam* ſays, that the very Body of all Animals and Vegetables is (as it were) a Contexture of *Barometers*, *Hygrometers* and *Thermometers*; for the Humours with which the organized Bodies are repleniſhed, increaſe or decreaſe, according to the different Diſpoſitions of the Air.

Prognoſticks of the Weather by Vegetables.

The Reverend Mr. *Pointer* tells us, he has obſerved, that many, if not moſt Vegetables do expand their Flowers, and down in ſun-ſhiny Weather, and towards the Evening, and againſt Rain, cloſe them again, eſpecially at the Beginning of their flowering, when their Seeds are young and tender.

This is evident in the Down of *Dandelion*, and other Downs, and eminently in the Flowers of *Pimpernel*; the opening and ſhutting of which, he ſays, are the Country-Man's Weather-wiſer.

And Mr. *Gerard* ſays, if the Flowers be cloſe ſhut it betokens *Rain* and foul *Weather*; but if they be ſpread abroad, fair *Weather*.

The Lord *Bacon* ſays, *Trefoil* ſwells in the Stalk againſt *Rain*, and ſo ſtands more upright; for by *Wet*, Stalks do erect and Leaves bow down; and *Pliny* ſays much to the ſame Purpoſe.

The Former ſays likewiſe, that there is in the Stubble Fields a ſmall red Flower, which Country People call the *Winco-pipe*, which if it opens in the Morning, you may be ſure of a fair Day to follow.

Mr. *Ozanam* gives as a natural Reaſon of this, that Plants are a Sort of natural *Hygrome-*

ters, which are compoſed of an infinite Number of Fibres, *Tracheæ*, or Air Veſſels, which are like ſo many Canals or Pipes thro' which the Moiſture of the Air as well as the Juice of the Earth, is conveyed into all its Parts.

Theſe *Tracheæ*, or Air Veſſels are viſible and appear very pretty in the Leaf of the *Scabious*, or the *Vine*, if you pull aſunder ſome of its principal Ribs, you may ſee between them the ſpiral Air Veſſels (like Threads of Cobwebs) a little uncoiled.

Signs of rainy Weather by ſolid Bodies.

The hardeſt and moſt ſolid *Wood* will ſwell by the Moiſture of the Air; this is evident by the Difficulty of ſhutting Doors and Windows in wet *Weather*; and Boxes, eſpecially of *Deal*, and Pegs of *Wood* when they draw and wind hard, are Signs of wet Weather; and this is cauſed by the Admiſſion of the Air thro' the Pores of the *Wood*.

Mr. *Ozanam* ſays, the moiſt Vapours do readily inſinuate into *Wood*, eſpecially that which is light and dry, it being extreamly porous; ſo that they are ſometimes made uſe of for dilating and breaking the hardeſt Bodies, and in particular *Mill-ſtones*; for when they have cut a Rock into a Cylinder, they divide that into ſeveral leſſer Cylinders, by making ſeveral Holes round the great Cylinder at proportional Diſtances, according to the Thickneſſes they deſign the *Mill-ſtones*, and then fill them with as many pieces of *Sallow Wood*, dry'd in an Oven; for when the wet Weather comes, theſe Wedges, or Pieces of Wood, become ſo impregnated with the moiſt Corpuſcles of the Air, thar they ſwell and break or ſeparate the cylindrical Rock into ſeveral Stones.

And *Stones*, eſpecially Marble, will ſweat, or rather ſeem to ſweat, againſt wet Weather, tho' it be but from an outward Cauſe, in that the ſtones are ſo hard and ſolid as not to admit the Moiſture of the Air; and therefore it only lies upon the Superficies of the Stones.

And the Humidity of the Air inſinuates it ſelf into the hardeſt Bodies, which are not deſtitute of Pores, and eſpeciallv into light Bodies, that take up a great Space.

Signs of rainy Weather from the Planets and Stars.

By the *Sun*. If the Sun at his riſing looks *red*, and broader than uſual, then many moiſt Vapours are gathering from the Sea, and the Air is thickening; and the Beams of the Sun being diffuſed in it cauſes the Sun's Face to ſhow a great deal bigger than is uſual; and in a ſhort time you will perceive the Clouds muſtering and overſpreading the Heavens, and the Air condenſing into a watery Body.

If this happens in *Summer* or *Autumn*, when the Weather is hot, the Showers that fall will be violent, but of ſhort Continuance;

nuance; but if this happens in the *Winter* or *Spring*, it denotes ſettled Rains, but more moderate.

It has been an Obſervation confirmed by long Experience, that if the *Sun* riſes with a *bluiſh* Circle, inclining to *white*, the Air is groſs and condenſed, and Rain will ſoon fall.

And if when the Sun riſes he is pale; and the Sky is of a duſky *red* in the Morning, it will ſoon be overcaſt, and there muſt quickly follow Rain, attended with whisking *Winds*.

Alſo if the *Sun* riſes of a miſty, muddy Colour, or in a *black* Cloud, and deffuſes his Rays *paliſh* towards the *North* and *South*, it foretells Rain.

It has been an Obſervation, that if the Sun ſets under a thick Cloud, Rain will fall the next Day; or if it rains immediately there will be a great deal of *Wind* the next Day; and this is almoſt the conſtant Conſequence of a *pale* Setting Sun.

Tho' a *red* Sky, at the *Sun-riſing* is a Sign of Rain, yet a *red* Sky, when the Sun ſets is a Sign of fair Weather. tho' indeed if the Sky be *red* at a great Diſtance from the part where the Sun ſets, as in the *Eaſt*, there will inſue either *Rain* or *Wind* the next Day.

As to the *Moon*. A *pale Moon* is a Fore-runner of Rain, a *red* one of Wind, and a clear one of fine Weather.

When the *Moon* is encompaſſed with a very large Circle, or is dim and miſty, then there will follow *Wind*, *Rain* or *Snow* very quickly, or probably within twenty four Hours.

If the Horns of the *Moon*, at her firſt riſing, or within two or three Days after her Change, are blunt, it betokens rainy *Weather* for that Quarter, but ſeaſonable *Weather* the other Quarters.

An *Iris* round the *Moon* is alſo a ſign of Rain, with a *South Wind*.

Two or three diſcontinued and ſpeckled Circles or Rings, round the *Moon* beſpeak a Storm.

From the *Stars*. When the Stars ſeem bigger than uſual, pale, dull, and do not twinkle, it is a Sign that the Air is condenſing to Rain, that will ſoon fall.

When in *Summer* time the *Stars* appear brighter and more blazing than ordinary, it beſpeaks great Winds and Rain.

When many Stars appear in the Night, and ſeem more numerous than uſual, and in Summer time the Wind be at *Eaſt*, if denotes ſudden Rain.

Signs of rainy Weather from the Clouds.

If in an Evening there appear many ſmall *Clouds* from the *Weſt*, it ſhews, that Rain is gathering and will ſoon fall.

When *Clouds* appear like Rocks or Towers, they ſignify great Showers.

Mr. *Ozanam* ſays, that when we ſee little, black, looſe *Clouds*, wandring to and fro, lower than the reſt, we apprehend a future

Storm; and when at the riſing of the Sun ſeveral *Clouds* are ſeen to gather in the *Weſt*; and on the other hand, if theſe *Clouds* diſperſe it beſpeaks fair Weather.

When the Sun, thro' the *Clouds*, appear double or triple, it ſhews a Storm of long Duration.

When *Halcyons*, *Coots*, and other Sea Fowls leave the Shores, and Flock to the Sea, it is a ſign of fair Weather.

When *Cattle* feed eagerly without looking about them, it is a ſign of fair Weather.

When *Fiſh* riſe frequently and flurt upon the Water, it is a ſign of fair Weather.

Spiders Webs in the Air, or on the Graſs and Trees foretel much fair Weather.

See the Articles *Barometers*, *Froſts*, *Hail*, *Fogs* and *Miſts*, *Rain*, *Snow*, *Vapours*, *Winds*, *Thunder*, *Lightening*, *Winter*, &c. in their proper Places.

11. WEATHER GLASSES, *ſee* BAROMETER *at the latter End of Letter* B. *and alſo in the* Supplement, *at the latter End of the firſt* Volume.

12. WHARLES.

WHARLES of *Flowers*, ſuch as are ſet at certain Diſtances about the main Stock or Spike.

13. SWEET-WILLIAMS, or SWEET-JOHNS.

MR. *Bradley* ſays, There are three Sorts of this Plant uſually cultivated in Gardens; two with *ſingle Flowers*, and one with *double*. The *ſingle* Sorts are both alike, except in the Colour of their Flowers; the one bears Cluſters of Flowers of a deep *Crimſon* Colour, and the other bears Truſſes of Flowers variegated with *red* and *white*. The double Kind has its Stems ſhorter than the ſingle ones, and bears beautiful *red* Flowers.

Soil.] They delight in a loamy Earth.

The ſingle Sorts may both be raiſed from *Seed* ſown in *March*, but will not bloſſom till the ſecond Year, they bear Bloſſoms upon Stalks two Foot high in *June* and *July*. They may alſo be increaſed from *Slips* taken from near the Root, or may be laid down in the Earth like *Carnation Layers*.

Mr. *Mortimer* ſays, the double and the Velvet are chiefly worth the propagating. They are multiplied by *Slips* taken from the Plant near the Root in *March* or *April*, and planted, and every *Slip* of them will grow. They flower in *July*, but not till the ſecond Year; And if their *Seed* were preſerv'd and ſown, other Varieties of them might be produced. They do very well ſown in Borders where they make a fine Shew.

14. WILLOW, *ſee* WITHY.

15. FRENCH WILLOWS.

THE *French Willow* is a *Dwarf Shrub*, it bears pretty Pink colourd Flowers, produces a great Number of Suckers, about the Root, which may be taken off and tranſplanted either in the *Spring* or *Autumn*. If theſe Plants be planted in Wilderneſs Works, they will ſoon overſpread the Ground, but if they are deſigned to adorn Parterre's, the Roots muſt be confined in Pots.

16. WINDS.

WIND is defin'd to be the Stream or Current of the Air, together with ſuch Vapours as the Air carries along with it.

The Ancients made but four Winds, according to the four Cardinal Points; but this was quickly looked upon as too groſs a Diviſion; the following Age added eight more to this Number, which was thought too minute and nice a ſubdividing; and therefore they reduced the laſt Number to four, taking every other, or middle Wind, and adding them to the old Account. But our Sailors, who are far beyond the Ancients for their Skill in Navigation, have divided the *Horizon* into thirty two equal parts, adding twenty eight to the four Cardinal Winds, a Thing exceeding uſeful in Navigation, but of no great concern in Natural Philoſophy, unleſs it be to give us a Hint that the Wind blows from all parts of the Heavens.

Winds are either *conſtant* or *variable*. The *conſtant Winds* are up and down always at a certain Time of the Year, and in certain Parts of the World; but the *variable* vary ſo much that that they cannot be reduced to any Rule.

The conſtant and periodical Winds are only in the wideſt Seas, as in the *Atlantick* and *Æthiopick* Seas, between the Tropicks, there is generally an *eaſterly Wind* all the Year long, without any conſiderable Variation, unleſs declining ſome few Points towards the *North* or *South*: But all along the Coaſts of *Guinea*, for five hundred Leagues the *ſoutherly* and *South Weſt Winds* are perpetual.

In the *Indian* Ocean the *Winds* are partly general as in the *Æthiopick* Ocean, and partly periodical, that is, they blow one Way half the Year, and upon the oppoſite Points the other half.

This that is here ſaid relates to the Sea *Winds* at ſome Diſtance from the Land; for upon the Land, and near the Shores, the Land and Sea Breezes are almoſt every where ſenſible; and the great variety that happens in their Periods, Force and Direction, happens from the Situation of Mountains, Valleys and Woods, and from the various Texture of the *Soil*, more or leſs capable of retaining or reflecting Heat, or of exhaling or condenſing Vapours.

Of *variable Winds*, ſome are common to all Countries, others are more peculiar to ſome particular Parts.

Of the latter Sort the moſt famous are *Hurricanes*, which chiefly infeſt the *Caribee Iſlands*, but are not anniverſary nor equally frequent.

Their Fury is ſo great, that they throw down all before them, tear up Trees, overturn Houſes, toſs Ships prodigiouſly, and blow about Things of vaſt Weight. They are not even, continued Winds, but blow in Guſts, which ſuddenly come and go; neither do they extend very wide, but are ſometimes confined to a narrow Compaſs, and at other Times take a larger Scope. As for their Duration, it is but for a few Days, and ſometimes only for a few Hours. They are more common in *America* than any where elſe; but yet *Europe* and *Aſia* are not altogether without them, as appears from Hiſtories and Travels.

The Cauſes of *Tempeſts* and *Hurricanes* are hardly to be accounted for in all the Particulars. However, it may in the firſt place be noted, that the *Ratio* of all Liquids is much the ſame; and therefore an extraordinary Motion may be excited in the Air, by the ſame Way as it is in the Water.

Now if Water fall from a high place, or if there be a Confluence of ſeveral Streams together, this gives a violent Motion. and cauſes many Whirlings and Eddies in it. This is apparent in the Torrents falling down the Rocks, and the Confluence of Rivers.

If therefore ſomething analogous may happen in the Air, there needs muſt be furious Tempeſts of Wind raiſed in it. And ſuch a Thing may happen, if an extraordinary Quantity of Vapours be drawn by the Wind, upon a certain Place, which they cannot eaſily get over, by Reaſon of Mountains or contrary Winds, which oppoſe them.

For Example; Suppoſe a Wind, upon ſome Point, between *North* and *Eaſt*, carries a large Collection of Vapours out of *Africa* into the *Carribee Iſles*; this Wind lights upon the Continent of *America*; now it is poſſible, that not only the Mountains and Woods of *Panama* may reſiſt the Current of this Wind, and crowd the Vapours together there; but a contrary Wind, upon a Point between *South* and *Weſt*, may blow at the ſame time upon the *Weſtern* Shore of *America*, which ſhall force the Vapours back again. When ſuch a Re-encounter happens; there muſt be a wild uproar in the Air about the *Carribee Iſlands*, and in all that Tract between *South* and *North America*. And the Vapours in this circular Motion muſt needs be furious on all Sides, juſt as it is in the Water.

For we ſee in the Confluence of two Rivers, if their Currents are rapid at the Place where they fall in, they cauſe violent Eddies whirl things about that are caſt into them, ſwallowing them up for a little time, and then throwing them up again.

This ſhews us the Reaſon, why heavy Bodies are often toſſed in the Air by the whirling of *Hurricanes*, and then daſh'd to the Ground again; for the Air being a circular Motion, is with great Fury toſs'd backwards and forwards, between the Ground and the Clouds.

For as the Waters of the rolling Sea do not run to the Shores in an even Stream, but in ſuch Waves as daſh by Fits and Turns; ſo the Courſe of a violent Wind is in broken and diſtinct Blaſts.

Such Tempeſts do not extend very far, (tho' their Bounds are uncertain) becauſe the neighbouring Air giving Way to them, they ſpend themſelves in the Progreſs of their Motion.

Thus when a great Stone is caſt into the Water we ſee a great Agitation round about the Place where it fell; but the more the Waves retire from the center of the Motion, the ſlower and the leſs ſenſible they grow: And as ſuch Motions do not laſt long in the Water. no more do they in the Air for the ſame Reaſon.

Though there may be unuſual Storms of Wind any where, the *Air* and *Vapours* are drawn together thereabouts, by contrary Winds; yet they are more frequent about the *Carribee* Iſlands, eſpecially in *June* and *Auguſt*, when the Sun is vertical there; for their Air being rarified by the Sun's Heat, the uſual Winds thither a vaſt Quantity of *Air* and *Vapours*, which being crouded together, in the Gulf of *America*, cauſe a great Æſtuation about the neighbouring Iſlands.

When the Sun is on this Side the *Æquator*, the Air is more rarified thereabouts, and it may ſo happen, that the *South*, *South Eaſt* Wind, which conſtantly blows beyond the Line, may ſometimes tranſgreſs its Limits, and bring the Vapours of the *Æthiopick* Sea, to the ſame Place where thoſe of the *Atlantick* are already gathered; which being kept in by the Shores of *America*, muſt neceſſarily be driven about the *Carribee* Iſlands.

Some *Winds* are drying, others are moiſt, ſome gather Clouds, others diſperſe them; ſome are warm, others cold, but their Influence is not one and the ſame, in all Places; for ſuch Winds as are warm in one Country are cold in another; thoſe that are wet with us are dry with other Nations, and on the contrary.

As to the Cauſe of *Winds*, ſome have been inclined to attribute it to the diurnal Rotation of the Earth upon its *Axis*; by which as the Globe turns *eaſtwards*, the looſe and fluid Particles of the Air, being ſo exceeding light, that they may be left behind; ſo that in reſpect of the Earth's Surface, they move *weſtwards*, and becomes a conſtant *eaſterly* Wind.

This Opinion ſeems confirmed in that theſe Winds are found only near the *Æquinoctial*, in thoſe Parallels of Latitude, where the diurnal Motion is ſwifteſt; but the conſtant Calms in the *Atlantick* Sea, near the *Æquator*, the *weſterly* Winds near the Coaſts of *Guinea*, and the periodical *weſterly Monſoons* under the *Æquator* in the *Indian* Seas, ſeemingly declare the Inſufficiency of this Hypotheſis.

Beſides, the Air being kept to the Earth by the Principle of Gravity, would in time acquire the ſame Degree of Velocity, that the Surface of the Earth moves with, as well as in reſpect of the diurnal Rotation as of the annual about the Sun, which is about thirty Times Swifter.

It remains therefore to ſubſtitute ſome other Cauſe that is capable of producing a like conſtant Effect, not liable to the ſame Objections, but agreeable to the known Properties of the Elements of *Air* and *Water*, and the Laws of the Motion of fluid Bodies, ſuch a one is the Action of the Beams of the *Sun*, upon the *Air* and *Water*, as he paſſes every Day over the *Oceans*, conſidered together with the Nature of the *Soil* and *Situation* of the neighbouring *Continents*.

Therefore according to the Laws of *Staticks*. the *Air* which is leſs rarified or expanded by Heat, and conſequently more ponderous, muſt have a motion round thoſe parts thereof, which are more rarified and leſs ponderous to bring it to an *Equilibrium*; alſo the preſence of the Sun continually ſhifting to the *weſtward*, that part towards which the *Air* tends, by Reaſon of Rarefaction made by his greateſt Meridian Heat is with him carried *weſtward*, and conſequently the tendency of the whole Body of the lower *Air* is that Way,

Thus a general *eaſterly* Wind is formed, which being impreſſed upon all the *Air* of a vaſt Ocean, the parts impel one the other, and ſo keep blowing till the next Return of the Sun, whereby ſo much of the Motion as was loſt, is again reſtored; and thus the *eaſterly* Wind is made perpetual.

From the ſame principle it follows, that this *eaſterly* Wind ſhould on the *North* ſide of the *Æquator* be to the *northward* of the *Eaſt*, and in *South* Latitudes to the *ſouthward* thereof; for near the Line the *Air* is much more rarified at a greater Diſtance from it, becauſe the Sun is twice in a Year vertical there, and at no Time diſtant above twenty three Degrees and an half, at which Diſtance the Heat being as the Sine of the Angles of Incidence, is but little ſhort of that of the perpendicular Ray. Whereas under the *Tropicks*, tho' the Sun ſtay long vertical, yet he is a long time forty ſeven Degrees off, which is a kind of Winter, wherein the *Air* cools, ſo that the Summer Heat cannot warm it to the ſame Degree with that under the *Æquator*.

Wherefore the *Air* towards the *northward* and *ſouthward* being leſs rarified than that in the Middle, it follows, that from both ſides it ought to tend towards the *Æquator*.

This Motion compounded with the former *eaſterly* Wind, anſwers all the *Phænomena* of the general Trade Winds, which if the whole Surface of the Globe were Sea, would undoubtedly blow all round the World, as they are found to do in the *Atlantick* and *Æthiopick* Oceans.

But ſeeing that ſo great Continents do interpoſe and break the Continuity of the *Oceans*, regard muſt be had to the Nature of the Soil, and and poſition of the high Mountains, which are the two principal Cauſes of the ſeveral Variations of the Wind from the former general Rule.

For if a Country lying near the Sun, prove to be flat, ſandy, and low Land, ſuch as the Deſerts of *Lybia* are uſually reported to be, the Heat occaſioned by the Reflections of the Beams of the Sun, and the Retention thereof in the Sand is incredible to thoſe that have not felt it, whereby the *Air* being exceedingly rarified, it is neceſſary that the cooler and more denſe *Air* ſhould run thitherwards to reſtore the *Æquilibrium*.

This is ſuppoſed to be the Cauſe why, upon the Coaſts of *Guinea*, the Wind always ſets in upon the Land, blowing *weſterly*, inſtead of *eaſterly*, there being ſufficient reaſon to believe, that the Inland parts of *Africa* are prodigiouſly hot, ſince the *northern* Borders thereof were ſo intemperate, as to give the Ancients cauſe to conclude, that beyond the *Tropicks* was inhabitable by exceſs of Heat. but this Hypotheſis is contradicted by the conſtant Calms in the *Atlantick* Sea near the *Equator*, &c.

Others are rather inclined to aſcribe it to the Action of the Sun's Beams upon the Air and Water, as he paſſes every Day over the Oceans, conſidered together with the Nature of the Soil and Situation of the adjoining Countries; the Mountains, the Woods, the Heat and Cold, the Moiſture or Drineſs of Countries, create the great Varieties of Winds.

The dry Winds ſeem to be ſuch as carry but a few Vapours along with them, and therefore lick off the moiſt Particles from the Bodies over which they paſs, and thus in *Holland*.

The *North* and *Eaſt Winds*, with the intermediate Points are drying, becauſe the cold *northern* Sea, yields but few Vapours in Compariſon of thoſe that come from warmer parts of the Ocean. But the *weſterly Winds* and others, are moiſt, becauſe they iſſue from warm and vaporous Parts. The *weſtern Wind* ſeldom failing to ſend Rain.

Such *Winds* gather Clouds, which blow from the Quarters where the Vapours ariſe, which in Conjunction with the Vapours of our own Region, fill the Air. And on the contrary, thoſe which bring little Vapours along with them, and bear away that which hangs over us, bring fair Weather.

Winds are either warm or cold, as the Countries are from whence they blow; and therefore when a brisk Wind blows from a cold Quarter, it allays the Heat of Summer, which is very troubleſome in ſtill Weather,. Thus a quick Blaſt of a pair of Bellows will put out a Flame, which a gentle Blowing increaſes; for the quick Blaſt drives all the Flame to one Side, where it is ſtifled by the Force of the incumbent Air, for want of Aliment; but a gentle Wind augments the Motion of the Flame every way, and makes it ſieze on more Parts of Fewel.

Now, becauſe all the Heat or Cold of Wind proceeds from the Heat or Cold of the Country where it blows; therefore the ſame Winds are cold or hot every where. Beyond the Line they are juſt the reverſe of what they are with us; their cold Winds are from the *South*, ours from the *North*; and as our *South* Winds are warm for no other Reaſon but becauſe they bring us an Air heated by the Sun, for the very ſame Reaſon the *North* Winds are warm to our *Antipodes.*

From what has been ſaid, it is evident, that the Sun is the Cauſe of Wind, and Motion the Cauſe of Vapours.

There are ſome who fancy that the Waters in the Bowels of the Earth are rarefied into Vapours by the ſubterraneous Fires, and theſe Vapours iſſuing out of the Chinks of the Ground create the Wind; and becauſe the Situation of Mountains is commonly ſuch, as permits thoſe Vapours to flow but one Way, therefore they ſay the Vehemence of the Wind is in ſuch and ſuch a Place.

But theſe Perſons ſhew no Place whence the Matter of the Winds can come with ſo much Force; tho' they talk of Caves which are the Store-houſes of the Winds; yet if it were ſo, all Places muſt be full of Caves, whereas we hear but of very few. And beſides, in the Places where ſuch Caves are, the ſame Winds would blow continually, or would ſeldom fail; but this is what was never found yet. See *Vapours*, *Hail*, *Rain*, *Snow*, *&c.*

Mr. *Laurence* ſays, the *Weſt* and *South-weſt* Winds with us make the greateſt Deſtruction in a Garden, which as he has made his Obſervations do blow two Parts in three of the whole Year, and that *weſterly* Winds blaſt Fruit more than thoſe from the *Eaſt*, as they are much more frequent.

The Reverend Mr. *Robinſon* gives us this Account of the *Origin* of *Winds*.

That in the greateſt probability it proceeds from vaſt Swarms of nitrous Particles, which riſe from the Bottom of the Sea, which having been put into Motion, either by the central Fire, or by that Heat and Fermentation which do abound in this huge Body of the Earth; and therefore this firſt Commotion, which is excited by the ſaid Fermentation, is called a *Bottom-Wind*, which is preſently diſcovered by Porpoiſes, and other

Sea Fiſh, that delight to ſport and play upon the Waves of the Sea, and do by their playing give to Mariners the firſt Notice of an approaching Storm.

When theſe nitrous Swarms are riſen towards the Surface of the Sea, they cauſe in a dark Night ſuch a ſhining light upon the Waves, as if the Sea were on fire, and being delivered from the brackiſh Water, and received into the open Air, thoſe fiery and ſhining Meteors which fix upon the Maſts and Sides of the Ships, and are only nitrous Particles condenſed by the circumambient Cold, and like that which the *Chymiſts* call *Phoſphorus*, or artificial Glow-worm, ſhine and caſt a Light, but have no Heat.

This gives the ſecond notice to Mariners, that the Storm is riſing; for the Sea begins to be rough upon the firſt breaking out of the Wind, and the Waves ſwell and riſe, tho' the Air at the ſame Time is calm and clear.

This boiling Fermentation of the Sea cauſes the Vapours to ariſe, which by the Intenſeneſs of the circumambient Cold is condenſed into thick Clouds, and falls down in Storms of Wind and Rain; firſt upon the Sea from whence they roſe, and then the attractive Power of the Mountain cold, by a ſecret Magnetiſm between Vapour and Cold, attracts the wateriſh Va- s, and intermixt with ni- Particles to the high Tops ountains and Hills, where hang hovering in thick Fogs and watery Miſts, until the Atmoſpherical Heat rarifies the nitrous part of the Fog, which is always uppermoſt, and appears white and tranſlucent, into briſk Gales of Wind,

And the Intenſneſs of atmoſpherical Cold having attracted the Vapours into the colder Regions of the Air, where being condenſed into Clouds, the *Wind* breaks, diſſipates and drives them before it, till they fall down in Rain, and water the Surface of the Earth.

And this ſeems to be the Reaſon why they have but little Wind and leſs Rain in *Egypt* and thoſe level Countries, where they have no Mountains.

Wind, ſays Mr. *Derham.* is a Current of the Air, and that which excites or alters its Currents may juſtly be ſaid to be the cauſe of *Winds.*

An Æquipoiſe of the Atmoſphere produces a Calm; but if that Æquipoiſe be taken off more or leſs, a Stream of *Air* and *Wind*, is accordingly thereby produced, either ſtronger or weaker, ſwifter or ſlower. And there are divers things that may cauſe ſuch alterations in the Æquipoiſe or Balance of the Atmoſphere, *viz.* Eruptions of Vapours from the Sea and Land, Rarefactions and Condenſations in one place more than in another, the falling of *Rain*, preſſure of the *Clouds*, *&c.*

It is obſerved of *Caves*, that they do always emit *Winds*, more or leſs; and as great *Caves*, ſo great *Lakes* alſo ſend forth *Winds*; but the moſt univerſal and conſtant Alterations of the Atmoſphere are produced by Heat and Cold.

This is manifeſt in the general *Trade Winds*, which between the *Tropicks* blow all the Year from *Eaſt* to *Weſt*. If the Cauſe of this be (according to the Opinions of ſome ingenious Men) the daily Progreſs of the Sun, round that Part of the Globe, and by his Heat rarefying one Part of the Air, while the cooler and heavier Air behind preſſes after.

And ſo the Sea and Land Breezes, and ſo in our Climate, the *Northerly* and *Southerly* Winds (which are commonly eſteemed the Cauſe of Cold and warm Weather) are really the Effects of the Cold or Warmth of the Atmoſphere.

Of this Mr. *Derham* ſays, he has had ſo many Confirmations, that he does not doubt of it; and he produces for an Inſtance of it, that it is not uncommon to ſee a warm *Southerly Wind*, on a ſudden changed to the *North*, by the Fall of *Snow* or *Hail*; and in a cold froſty Morning, to ſee the Wind *North*, and to wheel about towards the *Southerly* Quarters, when the Sun has well warm'd the Air; and then again in the cold Evening to turn *Northerly* or *Eaſterly*.

And from hence alſo it is, that the *Winds* and *Clouds* are oftentimes contrary to one another in *Thunder* Showers, (eſpecially if Hail falls) the ſultry Weather below, directing the *Wind* one way, and the cold above the *Clouds* another way.

He adds, that he has obſerved ſeveral Times, that when the Morning has been warm, and what *Wind* was ſtirring was *Weſt-ſouth-weſt*, that the *Clouds* were thick and black (as they generally are when Snow follows)

And that a little before Noon the Wind vered about to the *North* by *Weſt*, and ſometimes to other Points; the *Clouds* at the ſame Time flying ſome *North* by *Weſt*, and ſome *South-weſt*; that about one a Clock it rained apace; the Clouds ſometimes flying *North-eaſt*, then *North*, and at laſt both *Wind* and *Clouds* have ſettled *North* by *Weſt*, and that at that Time the *Sleet* fell very plentifully, and it grew very cold.

From all which he obſerves, *Firſt*, That tho' the Region below was warm, the Region of the *Clouds* was cold, as the *black* ſnowy Clouds ſhewed. *Secondly*, that the Struggle between the warmth of our Region, and the cold of the cloudy Region, ſtop'd the airy Currents of both Regions. *Thirdly*, That the falling of the Snow through our warmer Air, did at firſt melt into Rain, but after the ſuperior cold had conquered the inferior warmth, it became Sleet. *Fourthly*, That as the cold prevailed by degrees, ſo by degrees it wheeled about, both the *Winds* and *Clouds*, from the *Northward* towards the *South*.

Prognoſticks of Weather from the Winds.

The *Winds*, Mr. Pointer ſays,

are the cauſes of the moſt ſudden and extraordinary alterations of the Air.

The Nature of the *Winds* is ſuch, that by the Experience we have of them, we may very nearly predict what Weather we ſhall have for two or three Days after.

As for Example, we know that in our Climate, a *South* Wind generally brings Rain, and a *Weſt* Wind more, and the *Weſt* Wind is the Predominant Wind with us, becauſe the *Ocean* lies on the *Weſt* ſide of our Country.

And alſo that a *North* Wind brings fair Weather to us as well as the *Eaſt* Wind, which does not laſt ſo long as the *North*; therefore the *North-eaſt* and the *South Weſt* Winds are thoſe that it is neceſſary chiefly to be treated of.

Some curious Obſervers of the Weather have made this Obſervation for many Years, that there is as much *South* and *Weſt* Wind in eight Years as there is *north* and *eaſt* Winds; and of conſequence as many wet Years as dry Years.

Mr. *Pointer* gives the following Rules to know when the Wind will ſet in one of theſe two Points, for the moſt Part for two or three Months together:

Firſt, As to the *North-eaſt* Wind; when the Wind turns to the *North-eaſt* Point, and continues in it two Days without Rain, and does neither turn to *the Southward* the third Day, nor rain, then it is likely to continue eight or nine Days without Rain, and then to return into the *South*.

If the Wind turn out of the *South* to the *North-eaſt* again, and continues two Days in that Point without Rain, and neither rains, nor turns to the *South* the third Day, it is likely to continue *North-eaſt* for two Months, and for the moſt part *for three* Months. The *Wind* will finiſh theſe Turns towards the *North* in three Weeks Time.

Secondly; As to the *South-weſt* Winds; when the Wind has been in the *North* for two Months or more, and comes to the *South*, there are uſually three or four fair *Days* at firſt, and then on the fourth or fifth Day comes Rain, or elſe the *Wind* turns *North*, and continues dry ſtill.

If within a Day or two without Rain, it returns to the *South*, and with Rain turn *North-ward*, and return into the *South* the firſt or ſecond Day, as before, two or three Times together, after this Manner, then it is like to be in the *South*, or *South-weſt*, two or three Months together, for the moſt part, as it was in the *North* before. The *Wind* will finiſh theſe Turns in a Fortnight.

He does not mention the *Eaſt* or *Weſt Winds*, becauſe, he ſays, the Rains come uſually from the *South*, or in the ſhifting of the Wind from the *South* to the *North*. As for the Drought, the *Wind* is for the moſt part *North-eaſt*.

If it prove fair Weather out of the *South* for a Week together (which is not uſual) it is like to be a great Drought, when it has rained for a long Time out of the *South* before.

The *Wind* uſually turns from the *North* to the *South* quietly without Rain; but comes back again into the *North* with a ſtrong Wind and Rain.

The greateſt *Winds*, which blow down Houſes and Trees, uſually come by the turning of the Wind out of the *South* by the *Weſt*, into the *North*, which drives away Rain and clears the Air.

Signs of the changing of the Wind.

Mr. *Pointer* ſays, in what Point ſoever the Wind is, when the Sun riſes with many pale Spots appearing in its Orb, and part of it hid in a Cloud, it will ſoon turn to the *South*.

That when the *Wind* has been ſettled for twenty four Hours or more, in any of the full Points, as *North*, *Eaſt*, *Weſt* or *South*, when it begins to turn it will ſettle till it comes to the oppoſite Point, as from the *North* to the *South*, and ſo from full *Eaſt* to full *Weſt*, and ſo of the angular Points, as from the *North-eaſt* to the *South-weſt*.

Upon whatſoever Quarter the Wind is, when the Moon changes, it preſently changes upon the new Moon.

When the generality of the Clouds tack with the *Wind* (tho' there ſhould be many in little Fleeces, or long Stakes, lying higher, and appearing not to move) the Wind is flagging and will ſoon change and ſhift its Point.

Common Obſervations and Signs of Wind and Storms ariſing.

If pale Spots ſeem to appear in the Orb of the Sun, at his *ſetting*, and do dazzle there, ſtrong *Winds* from the *South* will enſue, the *Wind* ſoon ſhifting into that Point, in what Quarter ſoever it was before.

If there appear upon the *Sun* when he is *ſetting*, fiery Spots, or of a reddiſh Colour, much Wind will eaſily enſue; and a red lowering Morning is frequently a Fore-runner of Wind.

If the *Moon*, when at the Full has a *reddiſh* Circle about her, it preſages much Wind.

When *Meteors* (or as they are commonly called *Stars*,) ſhoot and ſpread a long Train of Light, they are Fore-runners of Winds that will ſoon follow.

The Lord *Bacon* ſays, the following are Prognoſticks of high Winds or Tempeſts ariſing.

When the Sea reſounds upon theShore; when the *Winds* murmur in the Woods, without any apparent Wind, they portend that Wind will follow; for ſuch Winds breathing chiefly out of the Earth, are not firſt perceived except they be pent by Water, or Wood; and therefore a Murmur out of the Caves likewiſe portends as much.

When the Brightneſs of the ſmaller Stars is on a ſudden obſcur'd it is a ſign of a Tempeſt ariſing: For the upper Regions of the Air perceive the Collection of the Matter of *Tempeſts* and *Winds*, before the Air here below; therefore the obſcuring of the ſmaller Stars is a ſign of Tempeſts following.

He ſays, the *Air* and *Fire* have ſubtil Perceptions of the riſing of the *Wind*, before Men find it.

We may perceive the trembling of a Candle will diſcover a Wind, that otherwiſe we do not feel; and the flexious burning of Flames ſhews the Air is beginning to be unquiet; and in like Manner do Coals of Fire by caſting off the Aſhes more than uſual. The Reaſon is, becauſe no Wind is at firſt apparent to the Senſe, till it has agitated the Air.

And for the Aſhes, it is not to be admired at, if the Wind unperceived, ſhake them off, for it is a common Thing to try which way the Wind blows, by throwing up Graſs, or Chaff, or ſuch like Things into the Air.

Signs of the Winds ceaſing.

If a haſty Shower of Rain falls, when the Wind has raged for ſome Hours, it ſoon abates it

If Water ruckles much, and frequent Bubbles riſe, the Storm is but of ſhort Continuance.

If *Sparrows* chirp merrily, and Moles come out of their Holes, it is a ſign of a Storm ceaſing.

If the Bird called *King's Fiſher*, or *Halcyon*, attempts the Seas when the Wind blows hard, it is a ſign of its abating.

Prognoſticks of a hard Winter.

The Lord *Bacon* gives theſe as Signs, or Fore-runners of a hard Winter.

If *Stone* or *Wainſcot*, that have been uſed to *ſweat* (as it is called) be more dry in the Beginning of *Winter*; or the Drops of Eaves of Houſes come down more ſlowly, than they uſe to do, it portends a hard and froſty Winter. The Reaſon is, that it ſhews an Inclination in the Air to dry Weather, which in the Winter Time is always joined with Froſt.

Generally a *moiſt* and *cool Summer* betokens a hard Winter likely to enſue. The Reaſon is, that the Vapours of the Earth not being diſſipated by the Sun in the Summer, do rebound upon the Winter.

A *hot* and *dry* Summer, eſpecially if the Heat and Drought extend far into *September*, betokens an open Beginning of Winter, and Cold to ſucceed toward the latter Part of the Winter, and in the Beginning of the Spring; for till that Time the former *Heat* and *Drought*, bear the Sway, and the *Vapours* are not ſufficiently multiplied.

An *open* and *warm Winter* portends a *hot* and *dry* Summer; for the *Vapours* diſperſe into the Winter Showers; whereas *Cold* and *Froſt* keep them in, and tranſport them into the late Spring and Summer following.

The Country People have

made this Obſervation, that thoſe Years in which there are ſtore of Haws and Heps, do commonly portend cold Winters. The natural cauſe of this may be the want of Heat, and abundance of Moiſture in the Summer preceeding, which puts forth thoſe Fruits, and muſt of neceſſity leave a great Quantity of cold *Vapours*, undiſſipated, which cauſes the Cold of the following Winter.

When *Birds* lay up *Haws* and *Sloes*, and other Stores in old Neſts and hollow Trees, it is a ſign of a hard Winter approaching.

If *Fowls* or *Birds*, which uſed at certain Seaſons to change Countries, come earlier than the uſual Time, they ſhew the Temperature of the Weather, according to that Country from whence they came; as the *Winter Birds*, *Feldeſares*, *Snipes*, *Woodcocks*, &c.

If they come earlier, and out of the *Northern* Countries, they intimate cold Winters likely to enſue with us. And if it be in the ſame Country, they ſhew a Temperature of Seaſon, like unto that Seaſon in which they come, as *Batts*, *Cuckoes*, *Nightingales*, *Swallows*, which come towards Summer; if they come early it is a ſign a hot Summer will follow.

Cold *Dews* and Morning *Rimes*, about St. *Bartholomew-tide*, and *Hoar-Froſts* in the Morning about *Michaelmaſs-tide*, foretell a hard Winter.

When *Sea-pyes* flock from ſalt to freſh Water, it ſignifies a ſudden alteration of Weather to much Cold.

17. WINTER CHERRIES.

ARE encreaſed from their Roots by *Sprouts* and *Runners*.

18. *The white* WINTER FLOWER, WINTER GILLIFLOWER, *or* SNOW DROP.

THIS Plant is called in *Latin Narciſſo-Leucoium*, becauſe it takes after the *Narciſſus*, in reſpect of its Bulb, and after the Gilliflower, in reſpect of its Flower.

Deſcription.] It is thus deſcrib'd by Monſ. *Liger*; from its Bulb it ſhoots out long Leaves of a ſhining *Green* and pointed: From the Middle of the Leaves grows a Stalk, about half a Foot high, leafy, and bearing a Sort of *white* Seed half Way down. And at the End of the Stalk grows a *white* Flower, of a very ſweet Scent, compos'd of ſix Leaves, ſometimes alike, and ſometimes unlike, in the Shape of a hanging Bell. The Cup of this Flower grows to be a roundiſh Fruit, divided into three Seed Veſſels filled with roundiſh Seeds.

Way of Propagation.] This Plant is increaſed only by its Bulbs, and being reckoned a Sort of *Narciſſus* is ordered as they are; which ſee.

19. WITHY *and* WILLOW.

Soil.] THE *Withy* will grow on the drieſt Land, tho' it delights in a moiſt *Soil*, and the *Willows* on Banks near Rivers and wet Ditches, where they can reach the Moiſture with any of their Roots.

Mr. *Cook* ſays, the *Withy* does beſt in Ground that is not very moiſt, but yet the Moiſture muſt not be far from it, as on the weeping Side of an Hill where ſome Spring breaks out; or on Banks by the Sides of Rivers and Ditches, or on Banks in mooriſh Grounds.

The *Willow* alſo delights to grow on ſuch like Ground; both theſe Plants are ſet in ſuch Places as the *Water-Poplar* is, and of ſuch Sets as that is: See *Poplar*.

Way of Propagation.] They may be raiſed of *Cuttings* ſtuck in the Ground, or large *Truncheons* of eight or ten Foot long, when their Buds put out firſt. You may rub off all the under Buds, and leave only a few near the Top to draw up the Sap.

You may alſo raiſe them of *Layers*, or of *Seeds*, but they ſeldom ripen in *England*, and the other way being very eaſy, it will be but a needleſs Trouble.

The beſt time to tranſplant and lop them is in *February*, juſt before they begin to riſe, eſpecially if they be raiſed by *Cuttings* or *Truncheons*. Thoſe *Cuttings* are accounted the beſt that grow neareſt the Roots.

Mr. *Cook* ſays, there is one Sort called the *Smelling Willow*, which has a great Shoot, ears fine, broad, ſhining, green eaves, and will grow on moſt rounds that are not too dry.

This is a Miſtake, and I ſuppoſe is taken from a Plant called the *French-Willow*; for the other Willow bears no Flower but only a Catkin.

It bears a ſweet, beautiful Flower, and deſerves to be ſet in Orchards, if Rivers run by them, but if there are not, yet if the Ground be moiſt and pretty good, it will thrive well enough.

It is eaſily encreaſed of *Cuttings*. If the Ground have a dry Bottom, they ſhould be ſet on the *North* ſide of a Wall: The Bees delight much in this Plant.

It may alſo be encreaſed by *Laying*, for if it be but covered with Earth it will take Root.

20. WOODBIND. *See* HONEY-SUCKLE.

21. WOLF'S-BANE.

IS an early Flower: Is encreas'd by Parting of the Roots; and may be remov'd at any Time.

22. WORMS.

WORMS, Monſ. *Gentil* ſays, are very pernicious to Trees; ſo that they oftentimes die by ſome *Worm* ingender'd either in the *Root* or *Stem*, which intercepts the Sap. But yet ſuch a Tree may ſtill be preſerv'd, if you can but diſcover whereabouts the *Worm* lies. If a Tree continues pining, Day after Day, you may conclude there are ſome *Worms* either about the *Roots*, or between the *Wood* and the *Bark*. And he has found ſome almoſt as large as his little Finger, which would certainly have kill'd the Tree, if he had not gotten them out; but after they had been gotten out, the Tree returned to its firſt Vigour, and flouriſhed as well as if it had never been incommoded.

Mr. *Carpenter* ſays, That having obſerved ſeveral new-planted Trees to die away, after they had made fine and hopeful Shoots; ſearching into the Cauſe, and opening the Ground, they found at the Roots of the Trees many of the great Earth Caterpillars, with large Teeth, in Shape like thoſe of a Shark; which Caterpillars had gnaw'd off the Bark quite round the Roots of many of the Plants; and this irrecoverably deſtroy'd them.

There are a Sort of *Worms*, call'd *Cock-chafers*, which is very pernicious to Trees; and Ground freſh broken up is moſt ſubject to them. They remain in the Earth two or three Years, 'till they come to have Wings, and then they couple and hatch their young, which are *white*; and creeping into the Ground, ſtay there as long as the old ones did. This Sort of *Worms* ſticking to the Roots of young Trees, bark and kill them, as well as Plants and Herbs. The Way to kill them, is to dig them out.

There is alſo a little *black* Animal, call'd a *Vine-fretter*, that does a great deal of Miſchief to Trees, and kills the Grafts of *Peaches* when they begin to ſhoot, eſpecially Standard *Peach-Trees*. The Way to ſecure the Grafts from them, is to put them into little Paper-Bags, and tye them about with Thread.

As for deſtroying *Worms* in Walks, ſee *Walks*.

23. WORMWOOD.

Way of Propagation.]

THIS Plant, Mr. *Bradley* ſays, may be rais'd either by *Seeds* or *Slips*, planted in *March*; and will grow in any Soil: And if it be eaten by Hogs when the *Seeds* are ripe, they (paſſing thro' their Bodies) germinate and come up quickly, and ſo will be apt to over-run the Ground.

The *Seed* is thus deſcrib'd by Monſ. *Quintiney*: It is of a pretty odd Figure, being a little bent inward in its ſmalleſt Part, and a little open on the other End, which is bigger and rounder, and upon which there is a little *black* Spot: Its Colour is *yellowiſh* at the bigger End, and its ſharper End inclines to *black*.

The *Seed* is gather'd about *Auguſt*; but is ſeldom us'd, becauſe it is difficult to fan, being very light: And therefore, in order to propagate *Wormwood*, the *Cuttings* are uſed.

It is planted on Borders or Edges in a Line, at two or three Inches Diſtance, and five or ſix deep in the Ground.

It is good to ſlip them every *Spring*; to renew them every

[illegible] Time, and [illegible]
[illegible] Seeds.

YE

A YEW-TREE.

[illegible]

MR. *Mortimer* ſays, *Yew-Trees* are eaſily produc'd of *Seeds*, which muſt firſt be waſh'd and cleans'd of their Mucilage, and then be buried in Sand, made a little moiſt any Time in *December*, and ſo be kept in ſome Veſſels in the Houſe, all the *Winter*; and in ſome ſhady, cool Place abroad, in the *Summer*: And then are to be ſown on a Bed, (the Ground of which is not too ſtiff) the *Spring* come Twelve-Months after they have been thus laid in Sand. That it is commonly the ſecond *Winter* before they appear above Ground, and then they riſe with their Caps on their Heads: And may be tranſplanted at three Years old.

Mr. *Bradley* ſays, That after the *Berries* of the *Yew* have been cleanſed from their Pulp, and well dry'd, they may be laid in Sand, as directed; or to haſten their Germination, they may be laid in Bran and Water for a few Days before they are ſown, as follows: Mix your *Seeds* in a Buſhel of Bran, put them into a Tub, and wet it all very well with Rain or Pond-water, and let them ſtand without being diſturb'd for ten Days. About three Days after this Mixture has been prepar'd it will begin to heat, and ſo continue to ferment for thirty or forty Days, if (as it begins to dry) it be from Time to Time carefully ſprinkled with Pond-water. The Heat of this wet Bran will prepare the *Berries* mix'd with it; and in about a Week's Time after the Ferment has begun, will put them into a vegetable Poſture. By this Means, you may gain at leaſt a Year in their Growth.

In Cultivating the *Yew-Tree*, Monſ. *Liger* directs, as follows: He approves of Watering the *Seeds* before they are ſown; directs to ſow them in the looſeſt Ground you can (and if the Earth be not very good, to ſpread good Bed-mould over them an Inch thick) in *March*; to cover them with a Rake, and water them well; and when they appear above Ground, to water them well from Time to Time, during the hot Weather; and in two Years Time they will be fit to be tranſplanted.

This being the firſt Nurſery, he directs, in *March*, to make a larger Bed, to dig it well to looſen the Earth; and having rak'd it even, to plant the *Yews* at two Foot Diſtance one from another; and having cover'd the Roots, to water them. And as they grow up, to dig them four Times a Year: The firſt Digging ought to be in *March*, to diſpoſe the Plants to act, and to ſhoot their Roots the deeper; the ſecond in *May*, to facilitate the Action of the nouriſhing Sap in them; the third in *July*, to quicken in them a Motion that is ſlackened by the exhauſting of the Sap; and the fourth in *September*, to help the Salts in the Earth, (the Heat being incorporated with them) to penetrate the Plants the more readily, when the Weather is good, and will permit it.

The Plants, he ſays, muſt remain in the Nurſery four or five Years; and then may be tranſplanted, where you would have them, either in Alleys of large Gardens, Borders of Parterres, &c. When they are tranſplanted, it ſhould be with as much of the Earth about their Roots as poſſible, becauſe otherwiſe they will be a long Time in taking Root again.

Mr. *Mortimer* ſays, they may likewiſe be rais'd of *Layers* or *Slips*; and ſo planted out for Standards, Walks and Hedges, being clipp'd into what Form or Order you pleaſe.

Mr. *Bradley* ſays, The *Yew*-Tree is a very ſlow Grower, and therefore produces tough and hard Timber. He ſays, in ſome Parts of *Surrey*, there are Groves of it, of very large Trees, which ſeem to be the Product of Nature, rather than Art: That it delights in light Soil, and ſuch as is commonly ſtil'd barren; and that they are more readily produc'd by the coldeſt Mountains, than the richeſt Soils, and the more gentle Expoſures; and therefore, in the Cultivation of them, rich Manures are to be avoided.

He adds, That the Leaves of *Yew*-Trees are ſo ſmall, that they may be brought into any Form you deſire; as Inſtances of which, he mentions the famous Plants now growing in the *Phyſick-Garden* at *Oxford*, and that in the Church-yard at *Hillingdon*, near *Uxbridge*. And that he himſelf has ſeen great Varieties of Figures well repreſented in Plants of this Sort, as Beaſts, Birds, Men, Ships, and the like: But the moſt common Shapes given it by Gardeners, are either thoſe of a Cone, or Pyramid.

That they are of great Uſe for Hedges, and make very agreeable Diviſions in Gardens; and that it is uſual to fence in Quarters of Wilderneſs-Works with them.

That there is no Difficulty in Propagating them, and little Hazard in the Removing them; eſpecially if the Roots of them have been prun'd from Time to Time, by digging about them while they ſtand in the Nurſery.

The Time he directs for Tranſplanting them, is either in *September*, or in the *Spring*, as ſoon as the Weather is open.

Mr. *Cook* directs, to rub the fleſhy Subſtance off the *Berries*, to dry them, and put them in Sand, a little moiſt, in a Pot or Tub, any Time before *Chriſtmaſs*; to keep them in the Houſe all the *Winter*, and under ſome North-Wall abroad all th *Summer*; and the Spring co

Twelve-months after they have been thus put into Sand, to ſow them on a Bed, the Ground of which is not too ſtiff; to keep them clean weeded, and to prick them out of that Bed into a Nurſery; to let them ſtand there two or three Years; and then to bring them to what Shape you would have them.

2. YUCCA, *or* JUCCA INDICA.

THIS is an *American* Plant, but yet is pretty hardy. I have ſome Plants which have ſtood abroad ſeveral Years, and thrive equally as well as thoſe kept in the Green-Houſe. There are two or three Varieties of this Plant, differing in the Breadth of the Leaves, manner of Flowering, and difference of Growth: The moſt common is the broad Leaved, which is deſcribed thus by Mr. *Rea*.

The *Indian Jucca* hath a great, thick, tuberous Root, with large Fibres, from whence ſpringeth up a great round Tuft of hard long hollow *green* Leaves, with Points as ſharp as Thorns, which always remain, and never fall away; except it be ſome of thoſe that ſtand outward, which are recompenced by others that ſpring from the middle. From whence, ſometimes in an old and well grown Plant, ſprings up a ſtrong round Stalk, divided into ſeveral Branches, which bear divers Flowers, ſomething reſembling thoſe of the common *Frittillaria*, but narrow at the Bottom, containing ſix Leaves, the three outer veined on the Back from the Bottom to the middle, with a *reddiſh* Bluſh upon *white*. *Theſe* Flowers come forth in *Auguſt* and *September*, and ſtand about a Fortnight, and then fall away without producing any Seeds in our Country.

There is another with a broad Leaf that grows up ten or twelve Feet high, the under Leaves ſtill decaying, leaves a thick *ſcaly* Stalk, till within two Foot of the Top, where the Leaves remain *green* as the former. This differs from the common in their Flowers, which are more in Number and cloſer joined on the Stalks, and are of a *redder* Colour: The narrow leaved grows pretty high in the ſame Manner as the former.

Culture.] Theſe Plants are increas'd by *Suckers* taken from the Roots in any of the Summer Months, and planted in a Soil inclining to a Sand, and not over-watered, defending them in the Winter from the great Froſts and Rains while young, afterwards they are hardy enough.

A SUPPLEMENT

To the preceeding Letters, containing ſome Things omitted.

1. PLANTING.

IN planting of Trees it is common to ſee moſt People cut the Heads off, which is quite a wrong Practice; for they imagine the Head to weaken the Roots, for it is very certain, that the Juices contained in the Branches of the Tree, return and force out the young Roots before the Tree can receive any Nouriſhment from the Ground. For how is it poſſible for a Tree to receive its Nouriſhment from the Grounds before there are any new Roots formed? The old Fibres almoſt every Body allows to be unſerviceable, and therefore cuts them off at tranſplanting any Tree; but in order to prove the Head neceſſary to the Growth of the Tree. I took two Almond trees, Standards, *February*, $172\frac{2}{3}$, and cut the Head of one, as is common in planting, and the other I left all the Head on, and cut almoſt all the Roots off. The two Trees I planted within ten Foot of each other, in the ſame Situation and Soil, gave them equal Management, and the Tree that I left the Head on is now by much the moſt vigorous Tree; the other hardly alive. Some Experiments very much to this Purpoſe were made by Mr. *Thomas Fairchild*, Gardener at *Hoxton*, and ſhewed this Year to the Royal Society, which Experiments are mentioned in his own Words, as he gave them to me, in the fifth Page from this.

For want of a right Knowledge of this it is, that many a brave Plantation of *Elms*, and other Timber Trees has miſcarried, to the great Diſappointment of the Gentleman who has been at great Charge in the removing them, if they were his own, or very expenſive if he purchaſed them. And in the watering of ſuch new planted Trees, there is apt to be extreams, either of giving too much, or elſe none at all. It can't reaſonably be expected, that a new planted Tree ſhould be able to puſh out young Roots, without being ſupply'd with a due Proportion of Moiſture, to make the Earth of a fit Temper to receive thoſe young Shoots, and emit ſuch Particles of Nouriſhment into the Veſſels, as is neceſſary to the Growth of the Tree: And on the other Hand, I have often ſeen Trees that have had too much Water given them after planting, that has rotted all the young Fibres, as faſt as they have been puſh'd out, and ſo, many Times hath killed the Tree; but I would rather adviſe a moderate watering to the Root, and now and then in an Evening to water the Head, and with a Bruſh to waſh and ſupple the Bark all round the Trunk, which I have often found very ſerviceable; and, if Perſons would give themſelves Time to conſider of the ſtructure of Plants, and how the different Veſſels in Plants perform their ſeveral Offices in Plants, as they do in animal Bodies, and from thence draw Concluſions for their Management in planting; I perſwade my ſelf there would not be ſo many dead Sticks to be ſeen in the ſeveral Plantations about *London*, as there now is.

2. Rain.

MR. *Derham* ſays, Clouds and Rain are made of Vapours rais'd from Water or moiſt Air only, and theſe Vapours are demonſtratively no other than ſmall Bubbles, or *Veſiculæ*, detach'd from the Waters, by the Power of the Solar or Subterraneous Heat or both. And they being more light than the Atmoſphere, are buoyed up by it, till they become of an equal Weight with it in ſome of its Regions aloft in the Air, or nearer the Earth; in which thoſe Vapours are formed into *Clouds*, *Rain*, *Snow*, *Hail*, *Dews*, *Miſts*, &c.

The grand Agent in forming them is Cold, which does commonly, if not always, occupy the ſuperior Regions of the Air; as is manifeſt from thoſe Mountains which exalt their lofty Tops into the upper and middle Regions, and are always covered with Snow.

If this cold approaches near to the Earth, it preſently precipitates the Vapours, either in *Dews*, or if the Vapours aſcend more copiouſly, and meet the Cold ſoon, they are condenſed into *miſling*, or elſe into Showers of *ſmall Rain*, which falls in numerous, thick, ſmall Drops.

But if thoſe Vapours are not only copious, but alſo as heavy as our lower Air itſelf (by means of their Bladders being thick and fuller of Water) then they become viſible, ſwim but a little height above the Earth, and form that which is called a *Miſt* or *Fog*.

But if they are a Degree lighter, ſo that they mount higher; but not to any great Height, and do not meet with cold enough to condenſe them, nor Wind to diſſipate them; then they form an heavy, thick, *dark Sky*, laſting for ſeveral Weeks, without either *Sun* or *Rain*.

He adds, that we have oftentimes more *Rain* about the *Æquinoxes*, than at other Seaſons, the Reaſon of which is plain; becauſe the Vapours ariſe in great plenty in the *Spring*, when the Waters are looſ'd from their brumal Conſtipations: And in *Autumn* they do the like, when the Heats of the Summer, which both diſſipated them, and warmed the ſuperiour Regions, are abated; and then the Cold of the ſuperior Regions, meeting them, condenſes them into *Showers* of *Rain*, in greater plenty than at other Times, when either the Vapours are fewer, or the cold that is to condenſe them is leſs.

2. *Signs of Rain from the Rain-Bow.*

IF the *Rain-bow* appears very big, it denotes much wet; but if very red, Wind withal. If a *Rain-bow* appears after a long Drought, it ſignifies Rain; but if it appears after a long Time of wet, it betokens fair Weather.

If a *Rain-bow* appears in the Morning, it betokens ſmall Rain, and fair Weather preſently after.

If a *Rain-bow* vaniſhes altogether, fair Weather will follow, Winds will ariſe, and bring great Showers from the Part that the *Rain-bow* firſt begins to break or vaniſh,

If the *Rain-bow* be broken in many Parts, tempeſtuous Winds are gathering in the Air.

If after a *Rain-bow* appears, the Colours grow darker,and darker, Rain is gathering; if lighter, and the Colours fairer, fair Weather.

Mr. *Ozanam* ſays, a *Rain-bow* in the *Eaſt*, eſpecially, if it be of a bright lively Colour, is a ſign of great Rain. A *Rain-bow* in the *Eaſt* in an Evening, preſages fair Weather; but if the colour is lively and *red*, it preſages Wind.

A *Rain-bow* in the *Weſt*, foretells an indifferenr Quantity of Rain and Thunder.

If two *Rain-bows* appear togegether, it foretells fair Weather for the preſent; but Rain two or three Days after.

Prognoſtications of the Weather from MISTS.

IF *Miſts* ariſe out of Ponds and Rivers, to the Tops of Hills, it betokens that there will be Rain ſoon, either the ſame Day, or commonly within two or three Days; but if when they ariſe out of ſuch places, they vaniſh away, it is Sign of fair Weather.

If there be a general *Miſt*, both on the Hills and Vales, before the Sun-riſing, near the Full-Moon, it denotes fair Weather.

Mr. *Ozanam* ſays, if you obſerve a *white* Vapour ariſing upon Waters or Marſhes, or Meads after Sun ſet, or before Sun riſing, the next Day it will be fair warm Weather.

Signs of Rain ceaſing.

When a Shower comes ſuddenly, it is likely to be fair weather again in half an Hour or an Hour. The Reaſon is, that no Rain continues long that comes ſuddenly.

If it begins to Rain an Hour or two before Day, it is likely to be fair Weather before Noon, and to continue ſo all the reſt of the Day; but if the *Rain* begins an Hour or two before the riſing of the Sun, it is likely to *rain* moſt part of the Day after, except the *Rain-bow* appears before it Rains.

When the Air grows thicker and thicker by Degrees, and the Sun ſhines duller and duller, till it leaves off ſhining, or the Moon or Stars by Night, then it uſually rains ſix Hours.

When it begins to rain from the *South* with a high Wind for two or three Hours, and then the Wind falls, and it ſtill continues to *rain*, it is very likely to *rain* for twelve Hours or more, and commonly continues raining till a ſtrong Wind riſes to clear the Air. Long *Rains* ſeldom hold above twenty four Hours, or ſeldom happen above once a Year.

4. SAP.

DR. *Blair* in his *Botanick* Eſſays, ſays it may be admired, how prying and inquiſitive Perſons ſhould ſtill be ignorant of *the Circulation of the Sap*, or nutritive Juice of Plants; if the World had not remained ignorant for many Ages of a Circulation of the Blood in Animals, before the famous Dr. *Harvy* diſcovered it. The great obſtacle he ſuppoſes for finding out the ſame in Plants too might be the want of a due Conſideration of this Analogy, the inconveniency of diſſecting the *ſucciferous* Veſſels in Plants, *and the* Sap being of the ſame Colour *with* the Veſſels, unleſs it happen in ſome Plants to be milky and white.

The celebrated *Malpighi* and Dr. *Grew* made accurate Inquiries into the Structure of Plants, but yet were ignorant of the *Motion of the Sap*, although their Diſcoveries of the different Veſſels were a great inlet to the Knowledge thereof. Their Diſcoveries of the vaſt Variety of different Veſſels in Plants are ſo analogous to the Diſcoveries of thoſe in animal Bodies, that it is very reaſonable to ſuppoſe, they are deſign'd to perform the ſame Offices; Nature is uniform in all her Works, and it is our want of Underſtanding in the Works of Nature that leads us into Miſtakes, concerning her different Operations; and as Plants are govern'd by the ſame, great Law, which governs all other Bodies, and appears ſo harmonious in the ſeveral parts of the Creation. We need no longer doubt but the Motion of the Sap in Plants is analogous to the Motion of all Matter, which being ſet in Motion, muſt move circularly, *for* rectilinear Motion muſt terminate in reſt, and ſo muſt all *the* ſuccedaneous Particles; and certain it is, where ever there is a reſt of the Juices, there is a Stagnation, from whence conſequently iſſues Death: So that I cannot agree with thoſe that argue for the Juice thickening and lying at reſt in the Winter as in Summer, but in thoſe Trees which loſe their Leaves in Winter, there is certainly the ſame Motion as in thoſe that retain their Leaves, which is plain from the Curious Experiments made by Mr. *Thomas Fairchild* Gardiner at *Hoxton*, and ſhowed before the Royal Society in *April* 1724. The full Account thereof he was pleaſed to communicate to me, which you have as they were delivered unto the ſaid Society.

An account of ſome new Experiments, to prove that continued Circulation of the Sap in Plants and Trees, made by Thomas Fairchild *Gardener at* Hoxton, *and read before the* Royal Society, *when the Experiments were ſhewed.*

I Had the Honour ſome Years ago to ſhew ſome Experiments before this Honourable Body, and they were pleaſed to allow the Experiments to be new and uſeful, which encouraged me to try further, and to bring more Experiments in order to confirm the *Circulation of Sap*, which I find by Experience will be ſo uſeful, that I can make barren Trees fruitful, and decaying Trees healthful, and render the Syſtem of Gardening and Planting more beneficial to the Publick.

The firſt Plant I ſhewed was the *Laureola*, grafted upon the *Mezereon*, and the *Ever-green-Oak of Virginia*, upon the *Common Engliſh Oak*, both which hold their Leaves all the Winter, and are in good State and Flouriſhing, though grafted on Plants that drop their Leaves in Winter, which plainly proves that the Juices Circulate in Winter, in thoſe Plants that drop their Leaves, otherwiſe the Ever-greens that are grafted on them would ſoon periſh.

I believe by grafting the Variety of *foreign Oaks* upon the *Engliſh*, we might make the Timber more firm and laſting then it is in its own Nature, raiſed from foreign *Acorns*.

For as the *Crab-ſtock* maketh the Wood of the *Apple* more firm and laſting than thoſe on *Apple-ſtocks*: So *Peaches* and *Almonds* budded on *Plumbs*, are more laſting then thoſe on *Peach-ſtocks*. So by the contrary Rule all *firm Timber* grafted on *Spungy* Stocks, would be made worſe than they would be of their Bottom.

For Example, if that which is called the *Engliſh Elm* ſhould be grafted upon that which is called the *Dutch*, it would partake of abundance of the ſpungy Juices of the Stock, whereby the Wood would become unfit for the Purpoſes it is now uſed for.

The firſt Experiment I have to offer to your Obſervations at preſent is the new *England Cedar* or rather *Juniper* grafted on the *Virginia*, and what proveth the *Circulation* in it, is the Branch which is grafted is left ſeveral In-together with black on the nether ſide, there is likely to be Thunder and Rain together in many Places.

If two ſuch Clouds ariſe with Thunder in them, the one on the one ſide of you and the other on the other, then beware.

When Meteors ſhoot in the Night in the Summer, it is a Sign of approaching Thunder, much Heat, and conſequently that *Thunder* and *Lightning* will enſue.

When there are many *Clefts* and *Chops* in the Ground, they ſhow that abundance of nitrous and ſulphureous Vapours have been exhaled from the Earth, and got up amongſt the Clouds, and there being impatient of Reſtraint, and ſtruggling and rumbling, at laſt burſt thorough with a great Noiſe, which is called *Thunder*, and a ſudden Flaſh, which is called *Lightning*, which are both inſtantaneous, tho' the one is ſeen before the other is heard, becauſe the Senſe of *Seeing* is quicker than that of *Hearing*.

If in ſultry Weather no Clouds appear, and the *Sun* ſets *red* and fiery, great Flaſhes will appear in the *North* and *North-Weſt*, or *Lightning* without *Thunder*, becauſe meeting with no Oppoſition, tho' ſpringing from the ſame Cauſe, the Noiſe is not heard.

11. TRUNK.

TRUNK is the main Stem or Body of any Thing, in *Diſtinction* to Limbs or Branches, which ſpring therefrom.

12. TUBE.

TUBES are Pipes or hollow Veſſels, through which Juices are conveyed.

13. TUNIC.

TUNIC, a Membrane, or Membranes, covering any Thing.

14. TURBINATED.

TURBINATED, Plants are called ſo, that have a Reſemblance to a Turbant in Shape, or are of a conical Figure.

15. VAPOURS.

MR. *Pointer* conceives the Manner how *Vapours* are precipitated by the Cold, and reduced into Drops to be thus; that whereas *Vapours* are no more than inflated *Veſiculæ* of Water, when they meet with a colder Air than what is contained in them they are contracted into a leſſer Space, and by that Means the watery Shell or Caſe is rendered thicker, and ſo do become heavier than the Air, by which they are buoy'd up, and ſo of conſequence muſt needs fall down: And alſo many of thoſe thickened *Veſiculæ* run into one, and ſo form Drops greater or ſmaller, according to the Quantity of *Vapours* collected together.

It appears by the Experiments and obſervations of Dr *Halley*, Mr. *Sedileau*, *&c.* that all which is raiſed in Vapours does not fall in Rain, and that in the Winter Months they evaporate leaſt, and in Summer greateſt, and in windy Weather moſt of all.

And as to the Overplus, they are partly tumbled down, and ſpent by the Winds, and partly deſcend in Dews, which amount to a greater Quantity than is commonly imagined.

Dr. *Halley* did at St. *Helena* find the Deſcent of Vapours in Dews ſo prodigious, that he makes no doubt to attribute the Origin of Fountains to them. And Mr. *Derham* ſays, he has ſeen in a ſtill, cool Evening, large thick Clouds hanging without any Motion in the Air, which in two or three Hours Time have been melted down by Degrees, by the Cold of the Evening, ſo that not any the leaſt Remains of them have been left.

16. *Signs of fair* WEATHER.

WHEN the Sun is fair and bright at his riſing in a Morning, and is bluſhing without Spots or *black* Clouds near him when he ſets at Night, it is a Sign of fair Weather.

When the Moon is three or four Days old, and has her Horns ſharp and pointed very bright, it is a Sign of fair Weather, till ſhe comes to the full, if not the whole Month.

If the Moon has a bright ſhining Circle about her, when ſhe is at the full it promiſes fair Weather for many Days. When the Stars ſhine clear and bright, and ſeem to dart out pointed Rays, it is a Sign of fair Weather.

Alſo when little *Clouds* ſink low, as into Vallies at *South-eaſt* or *South-weſt*, it is a Sign of fair Weather.

If the Tops of *Hills* be clear it is a Sign of fair Weather.

If there are to the *North-weſt*, white ſcattering *Clouds*, like fleeces of Wool, it is a Sign of fair Weather.

When white *Clouds* or Miſts hang juſt over Rivers, and diſperſe no further, it is a ſign of fair Weather.

When a *Rain-bow* appears after a Shower, and the *blue yellow* part of it be very bright, and the higheſt Colour, they are Tokens of fair Weather.

When *Bees* fly far from their Hives, and come home late, it is a Sign of fair Weather.

When there are great Swarms of *Gnats*, it preſages fair Weather.

Glow-worms ſhining by Night is a Sign of fair Weather.

When *Larks* riſe very high,, and continue ſinging a long time it is a Sign of fair Weather.

When *Kites* fly aloft it beſpeaks fair, dry Weather. The Lord *Bacon* gives this Reaſon for it. Becauſe the *Kite* mounts moſt into the Air of that Temper, wherein he delights; for this aſpiring Bird does not ſo much affect the groſſneſs of the Air, as the cold and freſhneſs of it; for

Alaternus with golden edged Leaves.	*Alaternus foliorum limbo luteo colore fimbriato.*
Alaternus with bloached Leaves.	*Alaternus foliis maculis aſperſis.*
Alder-Tree.	*Alnus vulgaris.* Park. Theat. 1418
Almond-Tree with peach coloured Leaves, or double flowering Almond.	*Perſica Africana, nana, flore incarnato pleno.* T. 625.
Almond-Tree with white Flowers.	*Amygdalus floribus candidis.*
Almond Dwarf with ſingle Flowers.	*Perſica Africana, nana, flore incarnato ſimplici.* T. 625.
Amara dulcis, or Bitter ſweet.	*Solanum ſcandens vel dulcamara,* C. B. p. 167.
Amara dulcis with white Flowers.	*Solanum ſcandens vel dulcamara flore albo.*
Amara dulcis with ſtrip'd Leaves.	*Solanum ſcandens vel dulcamara foliis ex albo variegatis.*
Apple-Tree from Muſcovy.	*Malus Muſcovienſis.*
Judas Tree.	*Arbor Judæ.*
Arbor Vitæ.	*Thuya Theophraſti.* C. B. P. 488.
Arbor Vitæ with ſtrip'd Leaves.	*Thuya foliis variegatis.*
Arbutus, or Strawberry Tree.	*Arbutus folio ſerrato.* C. B. P. 460.
Aſh-Tree.	*Fraxinus Vulgaris.* Park. Theat. 1419.
Aſh-Tree with ſtrip'd Leaves.	*Fraxinus folio variegato.*
Manna-Aſh.	*Fraxinus rotundiore folio.* C. B. P. 416.
Flowering-Aſh.	*Fraxinus Americana florida.* Hort. Reg. Par.
Wild Aſh, or Quick Beam.	*Ornus ſive Fraxinus ſylveſtris.* P. Theat. 1419.
Aſpen-Tree.	*Populus Lybica.* P. Theat. 1411.
Azeroli with Pyracantha Leaves.	*Meſpilus ſpinoſa pyri folio.* H. L.
Bay-Tree with narrow Leaves.	*Laurus tenuifolia.*
Azeroli from Naples.	*Meſpilus Aronia ſive Neapolitana.* Park. Theat. 1423.
Bay-Tree.	*Laurus latifolia.*
Dutch Bay.	*Laurus vulgaris.* C. B. P. 460.
Bay-Tree with ſtrip'd Leaves.	*Laurus foliis variegatis.*
Beech-Tree.	*Fagus.* Park. Theat. 1402.
Benjamin-Tree.	*Arbor Benzoinifera.* Breyn. Prod. 2.
Berberry.	*Berberis dumetorum.* C. B. P. 454.
Berberry without Stones.	*Berberis ſine nucleo.* C. B. P. 454
Berberry with white Fruit.	Berberis fructu albo.

Canada

da Berberry.	*Berberis latiſſimo folio Canadenſis,* H. R. P.
-Tree.	*Betula.* Park. Theat. 1408.
Cherry.	*Ceraſus racemoſa ſylveſtris, fructu non eduli.* C. B. P. Matthiolus 274.
der Nut, ſee *Staphyloden- on.*	
e leav'd Virginian Bladder ut.	*Staphylodendron Virginianum trifoliatum.* H. L.
Tree.	*Buxus.*
Tree with ſtrip'd Leaves.	*Buxus foliis variegatis.*
rf Dutch Box.	*Buxus nana, Batavica.*
er, ſee Virgin's Bower.	*Clematites.*
thorn with Willow Leaves.	*Rhamnoides florifera Salicis foliis.* Tor Cor. 53,
lle-Berry Tree from Virgi- a.	*Myrtus Brabantica, ſimilis Carolinienſi, bacchata, fructu racemoſo, ſeſſili, monopyreno.* Pluk. Phy. 48.
ne, or Caſhioberry Buſh from arolina.	*Caſſine vera, perquam ſimilis arbuſculæ Phillyreæ, foliis antagoniſtis, ex provincia Carolinienſi.* Pluk. mar. 40.
r of Lebanon.	*Larix orientalis fructu rotundiore, obtuſo.* Tourn. 586.
ar of Virginia.	*Juniperus Virginiana: foliis inferioribus juniperinis, ſuperioribus Subinum vel Cupreſſum referentibus.* Boerh. in lib. 2. p. 208.
r of Bermudas.	*Juniperus Bermudiana.*
mon, or Spaniſh Cheſnut- ree.	*Caſtanea vulgaris,* Park. Theat. 1400.
nut Tree with ſtriped eaves.	*Caſtanea vulgaris foliis variegatis.*
e Cheſnut Tree.	*Caſtanea equina.* Park Theat. 1400.
e Cheſnut Tree with ſcarlet owers.	*Pavia.* Boerh. in lib 2. p. 260.
ry-Tree.	*Ceraſus.*
s, or Holy Roſe.	*Ciſtus.*
iſh, or Cluſter Cherry.	*Ceraſus racemoſa, ſylveſtris, fructu non eduli, rubro.* H. R. P.
ry Plum of Virginia.	Ceraſus vel prunus Virginiana.

Alaternus with golden edged Leaves.	*Alaternus foliorum limbo luteo colore fimbriato.*
Alaternus with bloached Leaves.	*Alaternus foliis maculis aſperſis.*
Alder-Tree.	*Alnus vulgaris.* Park. Theat. 1408.
Almond-Tree with peach coloured Leaves, or double flowering Almond.	*Perſica Africana, nana, flore incarnato pleno.* T. 625.
Almond-Tree with white Flowers.	*Amygdalus floribus candidis.*
Almond Dwarf with ſingle Flowers.	*Perſica Africana, nana, flore incarnato ſimplici.* T. 625.
Amara dulcis, or Bitter ſweet.	*Solanum ſcandens vel dulcamare,* C. B. p. 167.
Amara dulcis with white Flowers.	*Solanum ſcandens vel dulcamare flore albo.*
Amara dulcis with ſtrip'd Leaves.	*Solanum ſcandens vel dulcamare foliis ex albo variegatis.*
Apple-Tree from Muſcovy.	*Malus Muſcovienſis.*
Judas Tree.	*Arbor Judæ.*
Arbor Vitæ.	*Thuya Theophraſti.* C. B. P. 488.
Arbor Vitæ with ſtrip'd Leaves.	*Thuya foliis variegatis.*
Arbutus, or Strawberry Tree.	*Arbutus folio ſerrato.* C. B. P. 460.
Aſh-Tree.	*Fraxinus Vulgaris.* Park. Theat. 1419.
Aſh-Tree with ſtrip'd Leaves.	*Fraxinus folio variegato.*
Manna-Aſh.	*Fraxinus rotundiore folio.* C. B. P. 416.
Flowering-Aſh.	*Fraxinus Americana florida.* Hort. Reg. Par.
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Aſpen-Tree.	*Populus Lybica.* P. Theat. 1411.
Azeroli with Pyracantha Leaves.	*Meſpilus ſpinoſa pyri folio.* H. L.
Bay-Tree with narrow Leaves.	*Laurus tenuifolia.*
Azeroli from Naples.	*Meſpilus Aronia ſive Neapolitana,* Park. Theat. 1423.
Bay-Tree.	*Laurus latifolia.*
Dutch Bay.	*Laurus vulgaris.* C. B. P. 460,
Bay-Tree with ſtrip'd Leaves.	*Laurus foliis variegatis.*
Beech-Tree.	*Fagus.* Park. Theat. 1402.
Benjamin-Tree.	*Arbor Benzoinifera.* Breyn. Prod. 2.
Berberry.	*Berberis dumetorum.* C. B. P. 454.
Berberry without Stones.	*Berberis ſine nucleo.* C. B. P. 454.
Berberry with white Fruit.	*Berberis fructu albo.*

Spaniſh Tree Germander.	*Tucrim Bœticum Calice campanulato.* Boerh. 181.
Groundſel Tree from Virginia.	*Senecio Virginianus Arboreſcens A triplicis folio* Par. Bat. 225.
Glaſtenbury, or Chriſtmas Thorn.	
Sweet Gaule, Sweet Willow, or Dutch Myrtle.	*Salix odora vel myrtus Batavica.*
Hickery Walnut from Virginia.	*Vide* Walnut.
Holly Tree.	*Aquifolium.*
Holly Tree with yellow Berries.	*Aquifolium Baccis luteis.*
Hedg-hog Holly, plain.	*Aquifolium echinatum folii ſuperficie,* Corn. 180.
Blind's Cream.	*Aquifolium Dom. Blind.*
Fine Phyllis.	*Aquifolium vel Phyllis elegans.*
Fine Union.	*Aquifolium vel unio elegans.*
Bagſhot's Yellow.	*Aquifolium lutea Dom. Bagſhot.*
Gold Edger.	*Aquifolium foliorum fimbria aureo colore variegata.*
Bridgman's.	*Aquifolium Dom. Bridgman.*
Broderick's.	*Aquifolium Dom. Broderick.*
Partridge's.	*Aquifolium Dom. Partridge.*
Milkmaid.	*Aquifolium vulgo dicta* Lactaria.
Eales's.	*Aquifolium Dom. Eales.*
Painted Lady.	*Aquifolium vulgo dicta, Domina vel fœmina nobilis picta.*
Hertfordſhire white.	*Aqui. candida Hertfordiæ comitatus.*
Silver edg'd Hedg-hog.	*Aqui echinata candidis foliorum fimbriis.*
Gold edg'd Hedg-hog.	*Aqui. echinata foliorum fimbriis aureo colore variegatis.*
Gold bloatch'd Hedg-hog.	*Aqui. echinata maculis variegata.*
Halimus Sea Purſlain, or Orach Tree.	*Atriplex latifolia ſive Halimus fruticoſus latifolius.*
Honey Suckles with the Leaves always green.	*Periclymenum perfoliatum Virginianum ſemper virens & florens.* H. L. 484.
Italian Honey-Suckle.	*Caprifolium Italicum.* Dod. P. 411.
Fly Honey-Suckle.	*Periclymenum rectum fructu nigro.* Park. Theat. 1462.
Dutch Honey-Suckle.	*Caprifolium Germanicum flore rubello ſerotinum.* H. R. P.
Early flowering Honey-Suckle.	*Caprifolium Italicum perfoliatum præcox.* H. R. P.
Blue berried, upright Honey-Suckle.	*Chamæceraſus montana fructu ſingulari cæruleo.* C. B. P.

Red berried upright Honey-Suckle.	*Chamæcerasus dumetorum fru gemino rubro.* C. B. P.
Horn-beam Tree.	*Ostrys sive, Ostrya Theophr.* Park. Theat. 1405.
Hop Horn-beam Tree.	*Carpinus.*
Hornbeam from Virginia with	*Carpinus Virginiana.*
small Leaves like the small leav'd Elm.	*Ostrys Virginiana ulmo similis.*
Jessamine with white Flowers, a common Jessamine.	*Jasminum vulgatius flore albo.* C. B. P. 397.
Jessamine with yellow Flowers.	*Jasminum humile luteum.*
Jessamine of Virginia with yellow Flowers.	*Jasminum Virginianum flore luteo.*
Jasminum Persicum, see Lilac.	*Lilac Laciniato flore.*
Ilex of several Sorts.	*Vide* Oak.
Common Juniper.	*Juniperus vulgaris fruticosa.* C. B. P. 488.
Swedish Juniper.	*Juniperus Vulgaris arbor.* C.B.P. 487.
Ivy Tree.	*Hedera.*
Creeping Ivy.	*Hedera major sterilis.* C.B.P. 305.
Ivy with striped Leaves.	*Hedera communis minor foliis ex albo & viridi variis.*
Laburnum.	
Larix, or Larch Tree.	*Larix folio deciduo, conifera.* J. B. 1. 265.
Common Laurel.	*Laurus.*
Laurel with strip'd Leaves.	*Laurus foliis variegatis.*
Alexandrian Laurel.	*Laurus Alexandrina.*
Laurustinus with rough Leaves.	*Laurustinus vulgaris.* C. B. P. 460.
Laurustinus with shining Leaves.	*Laurustinus prior,* Clus. H. 49.
Laurustinus with small Leaves hardy.	*Laurustinus* II. Clus. H. 49.
Richards shining leaved Laurustinus.	*Laurustinus* III. Clus. H. 49.
Lentiscus, or mastick Tree.	*Lentiscus vulgaris.* C. B. P. 39
Lilac with purple Flowers.	*Lilac flore saturate purpureo.*
Lilac with white Flowers.	*Lilac flore albo.* T. 601.
Persian Lilac with whole Leaves.	*Lilac foliis ligustri.*
Persian Lilac with cut Leaves.	*Lilac laciniato folio.*
Blue Lilac.	*Lilac flore cæruleo.* Matt. 1237.
Liquid Amber.	*Vide* Storax Tree.
Lime Tree with large Leaves.	*Tilia fœmina folio majore.* C. B. P. 426.

Lime Tree with ſmall Leaves.	*Tibia fœmina folio minore.* C.B.P. 426.
Lime Tree with red Twigs.	*Tilia foliis molliter hirſutis viminibus rubris.* Ray. Synopſ. 316.
Lime Tree with black Twigs.	*Tilia virgis nigris.*
Lotus, or Nettle Tree.	*Lotus.*
Machaleb, or perfumed Cherry.	*Machaleb vel Ceraſus odora.*
Common Wood Maple Tree, or the leſſer Maple Tree.	*Acer minus vulgare.* Park Theat. 1425.
Great Maple, falſely called the Sycamore.	*Acer majus latifolium.* Park. Theat. 1425.
Great Maple with ſtrip'd Leaves.	*Acer majus folio variegato.*
Norway Maple with a plane-Tree Leaf.	*Acer Platanoides.* Munt. hiſt. 55.
Aſh leav'd Maple of Virginia.	*Acer maximum foliis trifidis vel quinquifidis Virginianum.*
Virginian flowering Maple.	*Acer Virginianum folio majore, Subtus Argenteo, ſupra viridi, ſplendente.* Pluck. Phyt.
Meſpilus, or common Hawthorn.	*Meſpilus apii folio, ſylveſtris, ſpinoſa ſive oxyacantha.*
Meſpilus, or large Cock Spur thorn.	*Meſpilus ſpinoſa, ſive oxyacantha Virginiana, maxima.*
Meſpilus, or Hawthorn with double Flowers.	*Meſpilus ſpinoſa ſive oxyacantha flore pleno.* Tourn. 641.
Glaſtenbury, or Chriſtmas Thorn.	*Meſpilus ſpina acuta, biflora, Britannica.* Park. Theat. 1025.
Common Medlar.	*Meſpilus vulgaris.* Park. Theat. 1422.
Great manured Medlar.	*Meſpilus maxima, ſativa.* Park. Theat. 1422.
Dwarf Meſpilus, or Baſtard Quince.	*Meſpilus folio ſubrotundo, fructu rubro.* Tourn. 642.
Mezereon.	*Thymelæa laurifolio deciduo ſive laureola fœmina.* T. 595.
Mezereon with Peach coloured Flowers.	*Thymelæa lauri folio deciduo flore incarnato.*
Mezereon with white Flowers.	*Thymelæa lauri folio deciduo flore albido.*
Mezereon with ſtrip'd Leaves.	*Thymelæa———folio variegato.*
Mirabolan Plum.	*Mirabolani.* Park. Theat. app. 1676.
Mulberry Tree with black Fruit.	*Morus nigra.*
Mulberry Tree with white Fruit.	Morus fructu albo. C.B.P. 459.

Myrtle wild, ſee ſweet Gaul.	*Myrtus Brabantica vel Anglica.* C. B. P. 1452.
Nettle Tree, ſee Lotus.	*Lotus fructu ceraſi.* C. B.P. 447.
Oak Tree.	*Quercus latifolius.* Park. Theat. 1385.
Oak Tree with ſtrip'd Leaves.	*Quercus Hiſpanicus foliis diſſectis.*
Broad leaved Oak from Carolina.	*Quercus latifolius Americanus.*
Willow leaved Oak from New England.	*Quercus Virginiana ſalicis longiore folio, fructu minimo.* Park. Al. 180.
Water Oak from Carolina.	*Quercus Americana aquatica.*
White Oak, or Iron Oak.	*Quercus alba vel ferrea.*
Several Sorts of Ever-green Oaks.	*Ilicis diverſæ Species, vid. Ilex.*
Oleaſter, or wild Olive.	*Olea ſylveſtris folio duro, ſubtus incano.* C. B. P. 472.
Olive with broad Leaves, or Manured, or Garden Olive Tree.	*Olea ſativa.* C. B. P. 472.
Luca Olive.	*Olea minor Lucenſis fructu odorato.* Tourn. 599.
Olive with Box Leaves.	*Olea Africana folio buxi craſſo, atro-viridi lucido, cortice albo, ſcabro.* Boerh. Jnd. 2. 218.
Parſley leav'd Virginian Climber called the Pepper Tree.	*Clematites Virginiana foliis apio ſimilibus.*
The common broad leav'd Paſſion Flower.	*Grenadilla pentaphyllos latioribus foliis, flore cæruleo magno.* Boer. lib. 2. 8.
The narrow leav'd, or Fruit bearing Paſſion Flower.	*Grenadilla pentaphyllos, flore cæruleo magno.*
The yellow Paſſion Flower.	*Grenadilla folio tricuſpide, flore parvo flaveſcente.* T. 240.
Peach Tree with double Flowers.	*Perſica vulgaris flore pleno.* T. 624.
Pear Tree with double Flowers.	*Pyrus ſativus flore pleno.*
Broad leav'd Perewincle.	*Pervinca vulgaris latifolia, flore cæruleo.* Tourn. 119.
Narrow leav'd Periwincle.	*Pervinca vulgaris anguſtifolia, flore cæruleo.* Tourn. 120.
Periwincle with white Flowers.	*Pervinca vulgaris anguſtifolia, flore albo.* Tourn. 120.

Double flowering Periwincle.	*Pervinca vulgaris anguſtifolia, flore pleno ſaturate purpureo.*
Yellow ſtrip'd Periwincle.	*Pervinca anguſtifolia vulgaris variegata ex auro & viridi.* B. 34.
Silver ſtrip'd Periwincle,	*Pervinca anguſtifolia vulgaris variegata ex argenteo & viridi.*
Pine Tree.	*Pinus.*
Pineaſter, or wild Pine.	*Pinus ſylveſtris.* C. B. P. 491.
Pine Tree with five Leaves, ſee the Lord *Weymouth*'s Firr.	*Pinus quinque foliis foliatus.*
Piſhamin of Virginia.	*Guajacana Piſhamin Virginianum.* Park. Theat. 1523.
Piſtachia from Virginia.	*Terebinthinus Indica Theophraſti Piſtachia Diaſcorides.* Boerh.
Phlomis, or yellow Baſtard Sage Tree.	*Phlomus fruticoſa ſalviæ folio latiore vel rotundiore.* T. 177.
Phillyrea *vera* with broad Leaves.	*Phillyrea latifolia.*
Phillyrea with narrow jagged Leaves.	*Phillyrea folio leviter ſerrato.* C. B. P. 476.
Phillyrea with very narrow Leaves.	*Phillyrea anguſtifolia prima.* C. B. P. 476.
Phillyrea with Olive or Box Leaves.	*Phillyrea folio Buxi.* Tourn. 596.
Phillyrea with bloatched Leaves.	*Phillyrea folio maculato.*
Plane tree occidental.	*Platanus Occidentalis.* Park. Theat. 1408.
Plane Tree oriental.	*Platanus Orientalis.* Park. Theat. 1408.
Plane Tree with Maple Leaves, or Spaniſh Plane Tree.	*Platanus Orientalis aceris folio.* Tourn. Corol.
Chriſtmaſs Plum, or Winter Crack.	*Prunus Natalitiorum.*
Poiſon Tree of Virginia, two Sorts.	*Toxicodendron triphyllum glabrum.* Tourn. 611.
Fruit-bearing Pomegranate Tree.	*Malus Punica ſativa.* C. B. P.
Pomegranate Tree with double Flowers.	*Malus Punica flore pleno majore.*
Poplar the white, ſee the *Abele*	*Populus alba.* Park. Theat. 1410.
Populus Lybica, ſee *Aſpen Tree.*	
Privet, or Prick Timber.	*Liguſtrum.*
Privet Italian Ever-green.	*Liguſtrum folio ſemper virente.*
Quick Beam, ſee Service.	
Quince Baſtard, *ſee* Service.	

R

Quince from New England.	*Malus cotonea Americana.*
Roſe ſingle Cinnamon.	*Roſa odore cinnamomi flore ſimplex.* C. B. P. 483.
Roſe double Cinnamon.	*Roſa odore cinnamomi flore pleno.* B. P. 483.
Roſe ſingle yellow.	*Roſa lutea, ſimplex.* Park. Theat. 417.
Roſe double yellow.	*Roſa lutea multiplex, ſive flore pleno* Park. Par. 417.
Roſe ſingle Musk.	*Roſa moſchata ſimplici flore.* C. B. P. 482.
Roſe double Musk.	*Roſa moſchata flore pleno.* C. B. P. 482.
Damask Roſe.	*Roſa Damaſcena.* Park. Par. 413.
Common white Roſe.	*Roſa alba vulgaris.* Rea flo. 30.
Dwarf white Roſe.	*Roſa campeſtris ſpinoſiſſima flore albo odoro.* C. B. P. 483.
Dwarf ſingle Roſe.	*Roſa ſylveſtris altera minor.*
Evergreen Roſe.	*Roſa ſemper virens.*
Frankfort Roſe.	*Roſa Francofurtenſis.* Park. Par. 412.
York and Lancaſter Roſe.	*Roſa verſicolor.* Park. Par. 414.
Belgick Roſe.	*Roſa Belgica ſive vitrea.* Park. Par. 412.
Moſs Province Roſe.	*Roſa rubra plena, ſpinoſiſſima pedunculo muſcoſo.*
Auſtrian Roſe.	*Roſa Punicea.* Cordi. 11.
Double red Roſe.	*Roſa rubra multiplex.* C. B. P. 381.
Childing Roſe.	*Roſa prolifera.*
Monthly Roſe.	*Roſa omnium Calendarum.* H. R. P.
Double Velvet Roſe.	*Roſa Holoſerica, multiplex.* Rea. flo. 27.
Single Velvet Roſe.	*Roſa holoſerica, flore ſimplici.*
Province Roſe.	*Roſa provincialis, rubra.* Park. Par.
Dutch hundred leaved Roſe.	*Roſa maxima, multiplex.*
Mrs. *Hart*'s, or the ſtrip'd Damask Roſe.	*Roſa Damaſcena, variegata, elegantior.* Rea. flo. 29.
Dwarf red Roſe.	*Roſa rubra, humilis, pumilio.* Park. par.
Roſa mundi.	*Roſa rubra & alba variegata, mundi vulgo dicta.* Raii H. P.
arbled Roſe.	Roſa marmorea. Rea. flo. 27.

Bloſſ

Bluſh Roſe.	*Roſa provincialis, flore incarnato, pleno.* H. Eyſt. v.
Roſe without Thorns.	*Roſa ſine ſpinis.* Rea. flo. 27.
Gelder Roſe, or Elder Roſe with flat Flowers.	*Opulus Ruelii.* 281.
Gelder Roſe with round Flowers.	*Opulus flore globoſo.* Tur. 607.
Strip'd Gelder Roſe, or Water Elder.	*Opulus folio variegato.*
Roſmary with narrow Leaves.	*Roſmarinus hortenſis, anguſtiore folio.* C. B. P. 217.
Roſmary with broad Leaves.	*Roſmarinus ſpontaneus ſive latifolius.* C. B. P. 217.
Roſmary with yellow ſtrip'd Leaves.	*Roſmarinus foliis luteo colore variegatis.*
Roſmary with ſilver ſtrip'd Leaves.	*Roſmarinus foliis candido colore variegatis.*
Sage Tree, ſee Phlomis.	
Saſſafras Tree.	*Saſſafras.* Park. Theat. 1606.
Savin Tree.	*Sabina folio Cypreſſi.* C. B. P. 487.
Service Tree, the wild, with Aſh Leaves, ſee Quickbeam.	*Aria Theophraſti.*
Common wild Service Tree.	*Sorbus torminalis vulgaris.* Park. Theat. 1420.
Wild Service with white Leaves. ſee *Aria Theophraſti.*	
True Service Tree with Aſhen Leaves.	*Sorbus legitima.* Park. Theat. 1420.
Siſſeli.	*Seſſeli Æthiopicum frutex.*
Snow-drop Tree.	*Frutex viola bulboſa data.*
Spaniſh Broom.	*Geniſta Hiſpanica.*
Spirea Frutex.	*Spirea Salicis folio.* T. 618.
Spirea from Virginia with Currant Leaves.	*Spirea opulii folio.* T. 618.
Staphylodendron, or Bladder Nut.	*Staphylodendron.* Mat. 274.
Staphylodendron of Virginia with three Leaves.	*Staphylodendron Virginianum trifoliatum.* H. L.
Maple leaved Storax.	*Acer Virginianum Odoratum.* H. L. app. 641.
Strawberry Tree, ſee *Arbutus*	
Virginian Sumach.	*Rhus Virginianum.* C. B. P. app. 517.

Myrtle leav'd Sumach.	*Rhus Myrtifolium Monſpeliacum.* C. B. P. 414.
Sycamore, ſee Maple	
White Syringa, or mock Orange.	*Syringa alba ſive Philadelphus Athenei.* C. B. P. 498.
Syringa with double Flowers.	*Syringa flore albo, pleno.* C. B. P. 398.
Tree Tamarisk, or French Tamarisk.	*Tamariſcus Narbonenſis.* Lob. Icon. 218.
Shrub Tamarisk, or German Tamarisk.	*Tamariſcus Germanica.* Lob. Icon. 218.
Trumpet Flower.	*Bignonia Americana fraxini folio, flore amplo, Phœniceo.* T. 164.
Trumpet Flower of Virginia with Orange coloured Leaves.	*Bignonia Americana arbor, flore luteo, fraxini folio.*
Tulip Tree with Maple Leaves.	*Tulipifera arbor Virginiana.* H. l.
Viburnum, wayfaring Tree, or Plant, mealy Tree.	*Viburnum.* Matthiolus.
Viburnum with ſtrip'd Leaves	*Viburnum folio variegato.*
Virgin's Bower with ſingle Flowers.	*Clematites cærulea vel purpura repens.* C. B. P. 301.
Virgins Bower with double Flowers.	*Clematites cærulea flore pleno.* C. B. P. 301.
Spaniſh Virgin's Bower.	*Clematites Peregrina foliis Pyri inciſis.*
Flowering Climber from Mr. *Dubois*'s at *Mitcham*; a Sort of Virgin's Bower.	*Clematites florigera.* D. Dubois *apud* Mitcham.
Walnut Tree.	*Nux juglans ſive regia vulgaris.* C. B. P. 417.
Great French Walnut.	*Nux juglans fructu maximo.* C. B. P. 417.
Dwarf Walnut from Carolina.	*Nux juglans pumila Caroliniana.*
Black Walnut from Virginia.	*Nux juglans Virginiana nigra.* H. L. 4520.
Hickery Walnut from Carolina.	*Nux juglans Virginiana, foliis vulgari ſimilis, fructu ſubrotundo, cortice duriore, lævi.*
Laurel leav'd, or Dutch Willow.	*Salix montana major foliis Laurini.* H. R. P.
Common Yew.	*Taxus.* C. B. P. 505.
Dwarf Yew.	*Taxus Humilis.*

A CATALOGUE of Plants, out of which any Gentleman may collect at Pleaſure, for to furniſh a Green-Houſe, and not require a Stove in the Winter.

ORANGES.

China Orange.	*Aurantium dulci medulla vulgare*
Sevil Orange.	*Aurantium acri medulla vulgare.*
Curl'd Orange.	*Aurantium criſpo folio.*
Strip'd curl'd Orange.	*Aurantium criſpo folio elegantiſſime variegato.*
Common ſtrip'd Orange.	*Aurantium folio variegato vulgare, Anglicum dictum.*
Turkey Orange.	*Aurantium anguſto ſalicis folio dictum.*
Strip'd Turkey Orange.	*Aurantium anguſto ſalicis folio elegantiſſime variegato.*
Dwarf Orange.	*Aurantium Sinenſe.*
Pumpelmoes or Shaddock.	*Aurantium fructu maximo Indiæ orientalis.*
Black Fruit with red Flowers.	
Hermaphrodite.	*Aurantium Hermaphroditum ſive corniculatum partim auarntium partim citreum.*
Citron.	*Citreum vulgare.*

LEMONS.

Common Lemon.	*Limon vulgaris.*
Lemon with long Fruit.	*Limon pyri effigie.*
Lemon with ſtrip'd Fruit.	*Limon fructu ſtriato.*
Burgamot Lemon.	
Lime.	*Limon acris*

A Catalogue of Green-Houſe Plants.

MYRTLES.

Orange leav'd Myrtle.	*Myrtus Bætica latifolia exotica*
Nutmeg Myrtle.	*Myrtus foliis odore nucis moſcata cauliculis rubentibus vulgo de citri.*
Strip'd Nutmeg Myrtle.	*Eadem folio variegato*
Box leav'd Myrtle.	*Myrtus folio Buxi.*
Box leav'd Myrtle ſtrip'd.	*Eadem folio variegato.*
Upright Myrtle.	*Myrtus anguſtifolia Bætica*
Upright Myrtle ſtrip'd.	*Eadem folio variegato.*
Broad leav'd Portugal Myrtle.	*Myrtus latifolia Romana.*
Roſemary leav'd Myrtle.	*Myrtus minor vulgaris.*
Thyme leav'd Myrtle.	*Myrtus foliis minimis & mucronatis.*
Double flowering Myrtle.	*Myrtus flore pleno.*
Birds-neſt Myrtle.	

JASSEMINES.

ILex leav'd Jaſſemine.	*Jaſminum Africanum folio ilicis, flore ſolitario ex alis foliorum proveniente.*
Indian yellow Jaſſemine.	*Jaſminum Indicum flavum odoratiſſimum.*
Ivy leav'd white Jaſſemine.	*Jaſminum Azoricum, trifoliatum, flore albo odoratiſſimum.*
Catalonian or Spaniſh Jaſſemine.	*Jaſminum humilius magn. flor.*
Arabian Jaſſemine.	*Jaſminum Arabicum foliis Limonii conjugatis, flore albo, pleno, odoratiſſimo.*

Several other curious Plants.

GEraniums ſeveral Sorts.	
Pomegranates two Sorts.	
Olives two Sorts.	
Leonoruſſes two Sorts.	
Cytiſſus Lunatus.	
Rhamnus or Spaniſh Thorn.	*Rhamnus Hiſpanicus folio Buxi minor.*
Dutch Bays.	
Barba Jovis, or Silver-buſh.	
Malabar Nut.	*Adhatoda Zeylanenſium.*
ine, or South-Sea Tea Tree.	

Caper

Caper Buſh.	*Fabago Africana arboreſcens, flore Sulphureo, fructu rotundo.*
Strip'd Snapdragon.	
Althea Frutex.	
Silver leav'd coronilla.	*Coronilla argentea, Cretica.*
White Spaniſh Broom.	*Spartium Hiſpanum flore candido.*
Viburnum Americanum.	
A Sort of Birthwort, falſely called the Snake-root.	*Ariſtolochia Piſtolochria dicta.*
Ficoides twelves Sorts.	
Aloes twelve Sorts.	
Sedums five Sorts.	
Cotyledons four Sorts.	

A CATALOGUE *of* FLOWERS *for the open Borders.*

HYacinths double and ſingle, many Sorts.
Snow-drops, double and ſingle.
Narciſſus's, ſeveral Sorts.
Iris's with bulboſe Roots, ſeveral Sorts.
Colchicums double and ſingle, many Sorts.
Crocus's, ſeveral Sorts.
Tulips double and ſingle many Sorts.
Frittillaria's, ſeveral Sorts.
Dens canis, two Sorts.
Jonquils, double and ſingle.
Hyacinths of Peru, two Sorts.
Lilies, double and ſingle.
Martagons, ſeveral Sorts.
Crown Imperials, ſeveral Sorts.
Winter Aconites.
Ranunculus's, ſeveral Sorts.
Mountain Ranunculus's.
Double Saxifrage.
Anemonies, ſeveral Sorts.
Lilies of the Valley, two Sorts.
Aſphodils, two Sorts.
Yellow Day Lily.
Geraniums, ſeveral Sorts with knobbed Roots.
Cyclamens, two Sorts.
Iris's with tuberoſe Roots, ſeveral Sorts.
Spiderwort, three Sorts.
Fraxinella, two Sorts.
Batchellors Buttons, two Sorts.
Thrift, three Sorts.
Double and ſingle Sweet-Williams.
Fairchild's Mule.
Campanula's, ſeveral Sorts.
Carnations, ſeveral Sorts that blow without breaking the Pod.
Wall Flowers, many Sorts.
Perennial Poppy.
Roſe Campions, double and ſingle.
Lychnis's three Sorts, ſingle and double.
Double ragged Robin.
Double Lychnis, a Sort of Catch-Fly.

Gentianella's.
Daiſies, ſeveral Sorts.
Auricula's, ſeveral Sorts.
Polyanthos, ſeveral Sorts.
Pinks ſingle and double, ſeveral Sorts.
Violets, ſeveral Sorts.
Hepatica's, ſingle and double.
Flammula Jovis.
Hollyhocks, or Garden Mallows, ſeveral Sorts.

A CATALOGUE *of Curious* FRUITS.

APPLES.

Genneting Apple
Quarandel
Strawberry
Summer Pearmain
Loan's Pearmain
Autumn Red Pearmain
Aromatick Pippin
Kerton Pippin
Cockle Pippin
Golden Pippin
Golden Rennet
Large Ruſſeting
Harvy Pippin
Kentiſh Pippin
Golden Monday
Large French Pippin
Drap d' Or
Pome d' Api
Cheſnut Apple
White Calvil
Red Calvil
Twice Bearing-Apple
Chaſte Apple
Indian Spice Apple
Flanders hollow-ey'd Pippin
Pome Water
Belly Bon
Paradiſe Apple
Quince Apple
Wheeler's Ruſſeting
Winter Pearmain
The Royal Codling
Kentiſh Codlings
Gurſe's great Apple
Hereford Red-ſtreak'd
Suſſex new Red-ſtreak
Bowler Apple
Mitcham Monſter Apple
Sops in Wine
Rutter's Pareil
Nonpareil
Stone, or two Years Pippin
Red Courpondu
White Courpondu
Courpondu Brode
Hogh Bonte, or High Goodneſs
Appe, from France
Caſſenot, early ripe
Green Rennet
Grey Rennet, or Rennet de Gris
Embroder'd Apples
Pear Ruſſeting
Harvy Apple
Cheſter Pearmain
Royal Pearmain
Ice Apple

These from Leghorn, *&c.*

Melia Apiole
Roſe Apiole
Francis Apiole
Moſcovy Apple.

CATALOGUE *of* PEARS *of the choiceſt Sorts, made a Preſent to Mr.* FURBER, *by* Mr. *Alderman* BROCAS.

ames of PEARS.	*Times of* EATING.
ron de Kermes	*June* and *July*
Genneting Pear	*June* and *July*
nell	*July*
t Blanquett	*July*
ett de Towers	*July*
nilion	*July* and *Auguſt*
a	*July* and *Auguſt*
lett	*July* and *Auguſt*
ge Burgamot.	*Auguſt*
en Pear of Santoigne	*Auguſt*
lam	*Auguſt*
ea	*Auguſt*
wel	*Auguſt*
bon	*Auguſt* and *September*
ſans Pepin	*Auguſt* and *September*
de Prince	*Auguſt* and *September*
ner bon Cretien	*September*
ner Burgamot	*September*
t Spicer	*September*
roſia	*September* and *October*
de Roy	*September* and *October*
's Bure	*September* and *October*
mn bon Cretien	*September* and *October*
s's Burgamot	*September* and *October*
Ruſſett	*September* and *October*
Pear	*October*
Bure	*October*
tia	*October* and November
ieur *John*	*October* and November
Egg.	*October* and November

Vert Long	*October* and *November*
Bezi de la Mot	*November*
Burgamot of France	*November*
Bezidery	*November*
La pin de Ver.	*November*
Cressan	*November* and *December*
Amadot	*November* and *December*
Colmar	*November* and *December*
St. Germains	*Nov. Dec.* and *January*
St. Andrew	*Nov. Dec.* and *Jan.*
La Marquese	*Nov. Dec.* and *Jan.*
Virgoleuse	*Nov. Dec.* and *Jan.*
Double Flower	*Jan. Feb.* and *March*
St. Marshall	*Jan. Feb.* and *March*
Winter bon Cretien	*Jan. Feb. March* and *April*
Ammell	*Jan. Feb. March* and *April*
Bon Long	*March, April, May* and *June*
Bon Rouge	*March, April, May* and *June*
Royal Warden	Baking, *Nov.* and *Dec.*
Cadillack	Baking, from *Jan.* to *June*
Dr. Uvedal's great German Pear	
Perkinson's Warden	Baking, *Nov. Dec.* &c.

Other Sorts of PEARS.

PRimat
Musk Robert
Gros Blanquet
Green Chiſſell
Windſor Pear
Callio Roſat
Cyprus Pear
Musk Blanquet
Robine
Hamden's Burgamot
Green Field
La Chaſſery
Mouille Bouche
Queen Catherine
Spaniſh bon Cretien
Ambret
Chriſtiana or Criſan
Royal d'Huyver
Bloody Pear
Spaniſh Warden
Pear Lewis
Pound Pear
Squaſh Pear
Sirean Pear

PEACHES.

Brown Nutmeg
White Nutmeg
Early Tipſon Peach
Early Ann Peach
Royal Ann Peach
Early Royal Peach
Early Admirable
Smith's Newington
Old Newington
Royal Newington
Red Magdalen
Bell Chevereuſe
Yellow Alberge
Bourdeaux, or Man Peach
Chancellor Peach
Rumbullion
White Magdalen
Montauban
Van Guard
Nobleſs Peach
Sion Peach
Golden Peach
Nivet Peach
Musk Violet
Double Montagne
Dutch Scarlet
Doeger Peach
Paſque Peach
Millet's Minion
Amber Peach
Orange Peach
Purple Royal Peach
New Orleans
Perſick Peach
Carliſle Peach
Liſle Peach
Brocaſs's large yellow Peach
Belgard Peach
Minion True
Bloody Peach
Double-flowering Peach
Large purple Pavie
Late Admirable
Late Royal
Dragon Peach, like the Admirable
Katherine Peach.

NECTARINES.

Early Nutmeg
Violet Hatif
Minion
Brugnon
Elruge
Varmaſh
Murrey
Red Roman
Newington
Peterborough's Italian
Italian
Arabian
Geneva
Scarlet, Parts clean from the Stone
French Nectarine
Late Green
Late Yellow, or Temple's Nectarine
Conde's Yellow Nectarine.

APRICOCKS.

Maſculine
Orange
Bredau
Algere
Roman
Bruxelles
Tranſparent
Brocas's large Turkey
Beſt Bearer

Several Curious Sorts of PLUMBS.

Prune Joan Hatiff
Musk Violet
Morocco

Chaſon, or Matchleſs
Blue Perdrigon
Fotheringham
Black Orleans
Fotheringhall
White Orleans
Green Gage
La Royal
William de Roy
Blue Primordian
Queen Dowager
White Perdrigon
Mirabolon, or French Nutmeg
Drap d' Or.
Muſcle Plumb
Abricot Plumb
Sheen Plumb
Imperial Plumb
Wheaten Plumb
Damask de Tours
Queen Mother
Mirabolon
Roche Corboon
Rein Claude
Black Pear Plumb
White Damaſon, for preſerving
Virginia Cherry Plumb
Maitre Claud
Bullock's Heart
Black Damaſon
White St. Catherine
Pomgranate Plumb
White Pear Plumb
Imperatus; hangs long
Prune Plumb
Chriſtmaſs Plumb, or Winter Crack
Simiano, an Italian Plumb.

CHERRIES.

EArly May
May Duke
te Duke
h Duke
Flemiſh
Cluſter Cherry
Lukeward
White Heart
Black Heart
Red Heart
Marſh's White Heart
Imperial
Italian Mazord
Bleeding Heart
Morello
Amber Heart
Ox Heart
Carnation Red
Morocco
Gaskin's Heart Cherry
Furber's White.

Several Sorts of VINES.

WHite Muſcadine
Black Muſcadine
July Grape
Burgundy Grape
Early Cluſter Grape
White Sweet-Water
Black Sweet-Water
Large black Cluſter
Darbous Grape
Parſly-leav'd Grape
Claret Grape
Currant Grape
White Frontiniack
Black Frontiniack
Griſly Frontiniack
Heſperian Grape
Large Blue Grape
Large Burlae White
Brick Grape
Black Muſcat
Renraw, from Hamborough
Strip'd Grape
Warner Grape, from Hamborough
Blue Van Guard
St. Peter's Grape

Cryſtal Grape
Black Raiſin
White Raiſin
Greek Grape, or Muſcat
Black Bon.

CURRANTS.

Large White Dutch Currant
Common White Currant
Large Red Dutch Currant
Common Red Currant
Late Red Currant
Murrey, or Champaigne
Black Currant
Strip'd Currant
Currant with Gooſeberry-Leaves
Engliſh-wild Currant.

Several fine Sorts of GOOSEBERRIES.

Large Green Early
Large White Hairy
Large ſmooth White
Large Scarlet
Large hairy Green, late ripe
Raſpberry Gooſeberry
Damaſon Gooſeberry
Large Crimſon
Large Walnut Gooſeberry, yellow
White Dutch
Amber hairy
Hairy Globe
Common Yellow
Old Blackſmith
Murrey Gooſeberry
Walnut Gooſeberry, black
Strip'd Gooſeberry
Ramboulon Gooſeberry
Cryſtal Gooſeberry
Muſk Gooſeberry
Champaigne Gooſeberry.

RASPBERRIES.

Large White Dutch Raſpberry
Common White Raſpberry
Hatif Red Raſpberry
Common Red Raſpberry.

BARBERRIES.

Large White Barberry
Barberry without Stones
Common Red Barberry
Canady Barberry.

STRAWBERRIES.

Engliſh or Wood Strawberry
White Strawberry
Scarlet Strawberry.
Hautboy Strawberry
Red ſided flat Strawberry.

MULBERRIES.

Black Mulberry
White Mulberry.

QUINCES.

Apple Quince
Pear Quince
New-England Quince.

MEDLARS.

Dutch Medlar
Dwarf Wild Medlar
Common Medlar
True Service
Wild Service
Lazeroli, or Neapolitan Medlar
Lazeroli, with Red Fruit.

Several Sorts of FIGS.

LArge, Blue Fig
Early, round, Blue Fig
Early, round, White Fig
Large White Fig
Royal Grey Fig
Murrey Fig
Italian Fig
Brunſwick Red Fig.

WALNUTS.

CLuſter Walnut
Large French Walnut
Early Walnut
Black Walnut, from Virginia
Dwarf Walnut, from Virginia.

CHESNUTS.

SPaniſh Cheſnut
Ditto, with ſtrip'd Leaves.

ALMONDS.

FRuit-bearing Almond, with Peach-colour'd Flowers
Ditto, with White Flowers.

NUTS.

WHite Filbert
Red Filbert
Large Cob-Nut.
Large Spaniſh-Nut
Carolina Tuft-Nut.

BRAMBLES.

COmmon Bramble
Bramble with White Fruit.
Virginia Bramble.

THE

INDEX

To the Second VOLUME, *containing the Particulars therein treated of, which are to be found in the ſame alphabetical Order as they are here ſet down.*

M

MAches, *ſee* Maskets.
Madder
Malabar Nut, *ſee* Adhatoda
Malleolus
Mallows
Malt Duſt
Maple
Maracoc, *ſee* Paſſion Flower
March
Marjoram
Marle
Martagons
Marvel *of* Peru
Marygolds
African Marygolds
Double Marygolds
Fig Marygolds, *ſee* Ficoides, *and alſo in the* Supplement
French Marygold
Maskets, *or* Corn Sallad
Maſterwort
Maternus
Matted
Maudlin, *or* Coaſt Mary
Maxechittle, *ſee* Scarlet Jeſſamine
May
Meadow Saffron
Medlars
Medulla
Melianthus
Melons
Melon Thiſtle, *or* Echinomelocactos
Melonry
Mezereon
Microſcope
Mildew
Minerals
Mint
Miſletoe
Moly, *or wild* Garlick
Monopetalous
Monopyreneous
Montigenous
Moſſes
Motherwort
Mould
Mucilage
Mucilaginous
Mulberry
Mulleins
Multiſiliquous
Multipetalous, *ſee* Supplement
Mummy
Mummy *for* Exoticks
Vegetable Mummy
Garden Mummy
Muſcipula, *or* Catch Flie
Muſcoſity
Muſcous
Muſhrooms
Muſtard
Myrtles.

N

NAked Seeds
Narciſſus

The INDEX

Naſturtium, or Capucine Capers
[illegible]
Natural
[illegible]
Natural Philoſophy
[illegible]
Nectarines
[illegible]
[illegible]
[illegible]
Nerium, ſee Oleander
[illegible]
Nigella, ſee Fennel Flower
Night-ſhade, or Marvel of Peru
Shrub Night-ſhade
Night-ſhade Tree
Nitre
Nitrous
Nodoſe
Nodoſity
Noli me Tangere
Noneſuch
Northern Aſpect
November
Nuciferous
Numeroſity
Nurſery for Fruit Trees

O

OAK
Ever-green
Oak, or Ilex
Oblong
Occident
Occidental
Occident Æſtival
Occident Æquinoctial
cident Hybernal
ober
ulation

Ocimum
Ocimum Citrat. or Baſil
Odoriferous
Oleaginous
Oleander
Olives
Onions
Sea Onions
[illegible]
Orange Trees
Orchard
Orient
Oriental
Orient Æquinoctial
Orient Æſtival
Orient Hybernal
Ornithogalon
Oſſicle
Oſiers
Oviparous
Ox-Eye, or Buphthalmon.

P

PAled
Palms
Pannicle
Panſies
Papilionaceous
Pappoſe
Pappus
Paraſitical Plants
Parſley
Stone Parſley
Royal Parſley
Parnaſſus
Parſnips
Parterre
Paſque Flower, or Pulſatilla
Paſſion Flower
Peach Tree
Catalogue of Peaches
Pear Tree

Catalogue of Pears
[illegible]
[illegible]
[illegible]
Pellitory of the Wall
Pendulous
[illegible]
Pennated
Penny Royal
Pentapetalous
Peony
Perdifolis
Perennial
Perfect Flowers
Perforated
Periploca, or Periploca
Perewincle
Perſonati
Petals
Phyllirea
Phytology
Picea, or Pitch-Tree
Piceaſter
Piloſity
Pimpernel
Pinching
Pine Tree
Pine Apple, ſee Anana
Pinks
Indian Pinks
German Pink
Poets Pinks
Pinnated
Pipe Tree, ſee Syringa
Piſmires
Piſtachio
Piſtillum
Pitchumen
Planifolious
Seminal Plants
Plan

Planting
Reverſe Planting
Plaſtick
Platanus
Plume
Plum Tree
Catalogue *of* Plums
Virginian Poke
Polyanthos
Polypetalous
Polypyreneus
Polyſpermous
Pomegranate Tree
Pomiferous Plants
Pomiferous Trees
Poplar
Poppies
Porraceous
Portico
Potatoes
Potting of Plants
London Pride
Primordian
Primroſes
Primroſe Tree
Italian green Privet
Procumbent
Prolifick
Pruniferous
Pruning *of* Trees
Ptarmica
Pudica Planta
Pulpous
Pumpions, *or* Pumkins
Purple Flower Gentle,
Purſlain
Pyracantha.

Q

QUeens Gilliflower
Quick-beam
Quick
Quince Tree
Quincunx Order.

R

RAcemiferous
Radiate
Radicate
Radicle
Radiſhes
Horſe-Radiſh
Rain
Rainbow
Ramification
Rampions
Ranunculus
To Rarefy
Raſberries
Water Rats
Recumbent
Refrigerate
Regerminate
Rhubarb
Rhus, Rhoe, &c.
Reſiniferous
Ricciolus
Ripening *of* Fruit
Rocamboles
Rocket
Double flowered Rocket
Roots
Grafting Roots
Multiplying Trees by Roots
Rorid
Roriferous
Roſe Trees
Monthly Roſe
Double *yellow* Roſe
Double *white* Roſe
Damask Roſe
Indian Roſe
Striped Roſe
Roſemary
Rue
Rugoſe
Rugoſity
Rural

S

SAffron Flower
Sage
Sagitta
Saline
Sallow
Salſify, *or* Goats Beard
Spaniſh Salſify
Salt
Samphire
Sand
Sap
Circulation *of* Sap
Sarculation
Satyrion
Savin
Savory
Saxafraſs
Saſſafraſs
Scabious
Scorzonera
Scrupoſe
Scrupoſity
Scurvy Graſs
Scutcheon
Seathrift
Sedum
Seeds
Segment
Sellery
Semeniferous
Semifiſtular
Seminal
Seminary
Seminary *for* Fruit Trees
Seminate
Senna
Senſible } Plants
Senſitive } Plants
alſo in the Supplement.
Senſitive

Sep-

September
Septifolious
Serene Weather
Side Saddle Flowers
Sideration
Siliqua
Siliquous
Silver Buſh
Sives
Skirets
Smallage
Snake Weed
Snap Dragon
Sneeze-wort
Snow, *alſo in the* Supplement
Snow-drops
Soils
Solſtice.
Summer Solſtice
Winter Solſtice
Solomon's Seal
Sorrel
Southernwood
Sow Bread
Spaniſh Broom
Spider, *in the* Supplement.
Spider-wort
Spinnage
Spine
Spinoſity
Spinous
Spontaneous
Squaſhes
Squils
Stamina
Stamineous
Æthiopian Star Flower
Statues
Stellate
Steril
Sterility
Stock July, *or* Gilliflowers
Strawberries
Stone-crop Tree
Style
Stoves
Subterraneous
Succory
Succulent
Succulency
Sulphureous
Sumach
Summit
Sun
Superficies
Surculoſe
Surculoſity
Surface
Sweet Baſil
Sycamore
Sylvatick
Syringa.

T

Tamariſk
Tanners Bark
Tanſey
Tarragon
Tergiſœtous
Terraſſes
Terrene
Terreſtrial
Tetrapetalous
Thermometer
Melon Thiſtle
Torch Thiſtle
Glaſtenbury Thorn
Thorn Apple
Thunder
Thuriferous
Thyme
Toad Flax
Tobacco
Tomentoſe
Tomentum
Tranſplanting Trees
Tranſportation of Plants
Trip Madam
Tuberoſe
Tuberoſity
Tube Roſes
Tuberous Plants
Tubulous
Tulips
Tulip Tree
Tunicle
Turf
Turgeſcence
Turgid
Turnips

V

Valerian
Vaporiferous
Vapours, *and alſo in the* Supplement
Variegated
Variegation *of* Plants
Vaſculiferous
Vaſes
Vegetables
Vegetation
Vepricoſe
Verge
Vermiculation
Vermiparous
Vermivorous
Vernal
Verticillate
Vines
Catalogue *of* Grapes
Vineyards
Wine *of* Grapes
Cultivating *of Wall* Vines
Violets
Violets Morian
Double Virgin's Bower
Virginian Climber
Umbelliferous
Umbriferous

Umbroſe
Umbroſity
Uniform
Urine

W

WAlks
Walls
Wall Flowers
Wallnut Tree
Waſps
Watering
Water Plants
Wax
Weather
Wharles
Sweet Williams
Willows
French Willows
Winds
Winter
Winter Cherries
Winter Flowers
Withy
Wood-Bind
Wolfs Bane
Worms.

Supplement.

Lightening
Multipetalous
Rain
Senſible Plants
Snow
Spiders
Tegument
Texture
Thunder
Trunk
Tube
Turbinated
Vapours
Water
Weather.

FINIS.

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